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ANNUAL DATA SUMMARY

1989
ELECTRICITY SUPPLY & DEMAND

FOR 1989-1998

FOR THE NINE REGIONAL RELIABILITY COUNCILS
OF THE
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

North American Electric Reliability Council

October 1989

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The North American Electric Reliability Council (NERC) annually collects and publishes ten-year projections of electricity supply and demand of the nine Regional Reliability Councils. This ***1989 Electricity Supply & Demand*** report provides this data for the 1989-1998 period.

The projections were developed by the nine Regional Reliability Councils and generally reflect conditions as of January 1, 1989. Data on peak demand, net energy for load, capacity resources, capacity margins, and planned additions and retirements of generating units have been extracted from the April 1, 1989 Coordinated Bulk Power Supply Program (IE-411) reports submitted to the U.S. Department of Energy by each Regional Reliability Council. Data on generating capacity, electrical energy production, fossil fuel requirements, and existing and planned additions of transmission lines were reported by the Regional Reliability Councils directly to NERC.

Areas served by the nine Regional Reliability Councils are shown on the inside back cover of this report. Five of the Regions – MAIN, NPCC, SERC, SPP, and WSCC – are broken down into subregions. The regional and subregional abbreviations used throughout this report are defined on page 174. The codes used in the appendixes to describe generating unit additions and retirements are defined on page 173.

Data for that part of the Comision Federal de Electricidad system in the northern portion of Baja California, Mexico, which is interconnected with the U.S. electric utility systems, is included under the category WSCC-Mexico or NERC-Mexico.

This report also includes forecast bandwidths around the equal probability peak demand and annual net energy for load projections for NERC-U.S. and NERC-Canada. The demand and energy projections for the United States and Canada are sums of the projections provided by the Regional Reliability Councils. The forecast bandwidths around these projections are intended to provide a better understanding of NERC's aggregated projections and to illustrate the uncertainty inherent in the forecasting process.

Future uncertainties, many beyond individual electric utility control, could change the underlying assumptions of these projections, the projections themselves, and the trends indicated.

Questions about this report may be directed to Virginia C. Sulzberger, Director-Engineering, and Colin L. Wright, Engineering Analyst, at the NERC office, (609) 452-8060.

DEMAND

PEAK DEMANDS (Thousands of MW)	Summer	1989	1998	Annual Growth Rate (%)
	NERC-U.S.	522	623	2.0
	NERC-Canada	54	68	2.4
	NERC-Mexico	0.8	1.4	7.2
	NERC-Total	**577**	**692**	**2.0**
	Winter	1989/90	1998/99	
	NERC-U.S.	476	573	2.1
	NERC-Canada	75	91	2.2
	NERC-Mexico	0.5	1.0	7.1
	NERC-Total	**551**	**665**	**2.1**
PEAK DEMAND FORECAST UNCERTAINTY (Thousands of MW)	Summer	1989	1998	Annual Growth Rate (%)
	High	537	673	2.5
	NERC-U.S.	**522**	**623**	**2.0**
	Low	506	565	1.2
	Winter	1989/90	1998/99	
	High	81	108	3.3
	NERC-Canada	**75**	**91**	**2.2**
	Low	70	74	0.7
PEAK DEMAND RATIOS (%)	Summer/Winter	1989	1998	Peak Season
	NERC-U.S.	110	109	Summer
	NERC-Canada	73	74	Winter
	NERC-Mexico	146	148	Summer
	NERC-Total	**105**	**104**	**Summer**
NET ENERGY FOR LOAD (NEL) (Millions of MWh)	Annual	1989	1998	Annual Growth Rate (%)
	NERC-U.S.	2,802	3,349	2.0
	NERC-Canada	418	517	2.4
	NERC-Mexico	3.8	7.3	7.6
	NERC-Total	**3,224**	**3,874**	**2.1**
NEL FORECAST UNCERTAINTY (Millions of MWh)	Annual	1989	1998	Annual Growth Rate (%)
	High	2,724	3,488	2.8
	NERC-U.S.	**2,802**	**3,349**	**2.0**
	Low	2,644	2,872	0.9
	High	393	550	3.8
	NERC-Canada	**418**	**517**	**2.4**
	Low	389	440	1.4
SYSTEM LOAD FACTORS (%)	Annual	1989	1998	Trend
	NERC-U.S.	61.3	61.4	Increasing
	NERC-Canada	63.8	64.8	Increasing
	NERC-Mexico	56.6	58.3	Increasing
	NERC-Total	**63.8**	**63.9**	**Increasing**

SUPPLY

PLANNED CAPACITY RESOURCES (Thousands of MW)

Summer	1989	1998	Annual Growth Rate (%)
NERC-U.S.	661	738	1.2
NERC-Canada	83	101	2.1
NERC-Mexico	0.8	1.5	7.2
NERC-Total	**745**	**840**	**1.3**
Winter	**1989/90**	**1998/99**	
NERC-U.S.	681	752	1.1
NERC-Canada	86	105	2.2
NERC-Mexico	0.8	1.5	7.2
NERC-Total	**768**	**858**	**1.2**

ESTIMATED CAPACITY MARGINS (%)

Summer	1989	1998
NERC-U.S.	23	18
NERC-Mexico	6	6
NERC-Total	**24**	**20**
Winter	**1989/90**	**1998/99**
NERC-Canada	16	16

PLANNED GENERATING UNIT ADDITIONS (Thousands of MW)

	1989-1998					
	Utility					
Summer	Nuclear	Coal	Hydro	Other	Non-Utility	Total
NERC-U.S.	11.2	13.5	1.4	28.0	18.1	**72.2**
NERC-Canada	3.5	4.2	11.0	1.0	1.0	**20.7**
NERC-Mexico	0.0	0.0	0.0	0.7	0.0	**0.7**
NERC-Total	**14.7**	**17.7**	**12.4**	**29.7**	**19.1**	**93.6**

TRANSMISSION

PLANNED TRANSMISSION ADDITIONS (Circuit Miles in Thousands)

	1989-1998			
Voltage Level	NERC U.S.	NERC Canada	NERC Mexico	NERC Total
230 kV (AC)	5.0	3.1	0.1	**8.2**
345 kV (AC)	3.6	0.9	0.0	**4.5**
500 kV (AC)	3.0	2.0	0.0	**5.0**
765 kV (AC)	0.0	1.1	0.0	**1.1**
±250 kV (DC) and above	0.6	0.8	0.0	**1.4**
Total	**12.2**	**7.9**	**0.1**	**20.2**

The aggregated demand data includes 1988 actual and 1989-1998 projected electrical peak demands for the nine Regional Reliability Councils and their subregions. All peak demands are 60-minute integrated demands.

Within a Region, the peak demands of individual electric utilities may occur in different months within a given season. Therefore, there are various levels of coincidence in the regional and subregional peak demand data ranging from coincident hourly peaks to monthly coincident peaks to noncoincident seasonal peaks. Overall, the peak demands for the Regions as well as for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total generally represent aggregations of noncoincident peaks.

The summer period includes June through September, while the winter period begins in December and runs through March of the following year.

1988 Actual Peak Demands

The 1988 actual summer and winter peak demands in the NERC areas of the United States, Canada, and Mexico exceeded their 1987 peaks. These areas also exceeded their peak demand forecasts for 1988 due mainly to a strong economy and extreme seasonal weather conditions. Details of these comparisons are shown in Table 1.

1989-1998 Projections

The 1989-1998 aggregated peak demand projections for the Regions and their subregions are shown in Tables 2 (summer) and 3 (winter). These tables also include 1988 actual peak demands and projected average annual peak demand growth rates. The average annual growth rates are calculated over the nine-year period from the first (1989) to the tenth (1998) year of the projections.

While there are no major differences in the 1989-1998 projected annual growth rates compared to last year's 1988-1997 projections, the absolute values of the 1989-1998 projections for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total are slightly higher than those made last year.

A comparison for 1997, the last common year of the two ten-year projections, indicates that the 1997 summer peak demand for NERC-U.S. is 17,700 MW (3%) higher and for NERC-Mexico 26 MW (2%) higher than last year's projections. Similarly, a comparison of the 1997/98 winter peak demand for NERC-Canada indicates that the current 1997/98 projection is 860 MW (1%) higher than last year's projection. A 1997 comparison on a regional basis shows that the 1989-1998 peak demands have increased in eight of the nine Regions compared to 1988's ten-year projections. Only ERCOT's peak demand projection decreased.

The NERC-Total aggregated summer peak demands in Table 2 show an increase of 114,578 MW over the 1989-1998 period — corresponding to an average annual growth rate of 2%. The high summer annual growth rates for NERC-Canada (2.4%) and NERC-Mexico (7.2%) are offset by the NERC-U.S. annual growth rate of 2%.

Table 3 shows that the NERC-Total aggregated winter peak demands are projected to increase by 114,418 MW over the 1989-1998 forecast period — corresponding to an average annual growth rate of 2.1%. NERC-Canada, a winter peaking area, has a summer peak demand growth rate slightly higher than its winter peak growth rate. NERC-U.S., a summer peaking area, has a winter peak demand growth rate higher than its summer peak growth rate. However, over the next ten years, NERC-U.S., NERC-Mexico, and NERC-Total are projected to remain summer peaking areas and NERC-Canada winter peaking.

Load Management

The 1989-1998 projections indicate that utility load management programs are expected to increase from the equivalent of 2.2% of the 1989 peak demand in NERC-U.S. (2.5% in NERC-Canada) to 2.8% (3.6% in NERC-Canada) of the 1998 peak demand.

In this report, the term load management includes those customer loads under the direct control of the electric utility system operator or interruptible by the customer at the utility's request in accordance with contractual arrangements. These "managed loads" are included in (not subtracted from) the peak demand aggregations of Tables 2 and 3 and are summarized in Tables 2A (summer) and 3A (winter). The differences between the peak demands of Tables 2 (summer) and 2A (summer) or Tables 3 (winter) and 3A (winter) are the net internal peak demands for which capacity resources are typically planned. These net internal peak demands are illustrated by the dashed line in Figures 2 (NERC-U.S.) and 3 (NERC-Canada).

Summer/Winter Peak Demand Ratios

Figure 1 illustrates summer-to-winter peak demand ratios for the NERC Regions and their subregions. The ratio, in percent, is calculated by dividing the summer peak demand for a given year (i.e., 1989) by the following winter (i.e., 1989/90) peak demand and multiplying the resulting ratio by 100. The seasonal peak demand ratios range from the highly winter peaking NPCC-Canada and MAPP-Canada areas to the highly summer peaking NERC-Mexico and SPP areas.

Seven of the nine Regions in the United States – MAAC, MAPP-U.S., ERCOT, MAIN, SPP, ECAR, and SERC – have faster growing winter peak demands than summer peak demands, although all seven Regions remain summer peaking throughout the forecast period. In contrast, NPCC-U.S. and WSCC-U.S. are tending toward becoming higher summer peaking areas. In Canada, all three Regions are projected to remain winter peaking over the next ten years. However, NPCC-Canada and MAPP-Canada have faster growing summer peaks than winter peaks. WSCC-Canada's winter peak demand is expected to continue to increase at a slightly faster rate than its summer peak.

Forecast Uncertainty

NERC's peak demand projections in Tables 2 and 3 are aggregates of regional projections that generally represent the midpoints of probabilistic distributions of forecast values. That is, the likelihood of the projections in Tables 2 and 3 being exceeded (50%) is equal to the likelihood of these projections not being reached (50%).

To provide a better understanding of NERC's aggregated projections and to illustrate the uncertainty inherent in the forecasting process, 80% probability peak demand bandwidths have been defined as shown in Figures 2 (NERC-U.S.) and 3 (NERC-Canada). In each case, the high and low bounds of the bandwidth are defined such that there is a 10% chance that demand will exceed the upper bound and a 10% chance that demand will be less than the lower bound. In other words, there is an 80% probability that future peak demands for NERC-U.S. and NERC-Canada will fall within their respective bounds. The NERC-U.S. peak demand bandwidth growth rates range from 1.2% to 2.5% per year over the forecast period. Comparable winter peak demand bandwidth growth rates for NERC-Canada range from 0.7% to 3.3% per year.

It would be incorrect and misleading to apply the absolute value or percentage range of the forecast bandwidths in Figures 2 and 3 to the projections of any NERC Region, subregion, group of utilities, or individual utility. The high and low bounds represent a composite of all member utilities in each country and apply only to the NERC-U.S. and NERC-Canada aggregated projections for peak demand.

Table 1 — 1988 Peak Demands — Thousands MW

Summer Peak Demand	1987 Actual[a]	1988 Actual[a]	Actual Change (%)	1988 Forecast[b]	Actual vs Forecast (%)
NERC-U.S.	496	**529**	6.7	500	5.8
NERC-Canada	50	**53**	5.7	51	3.6
NERC-Mexico[c]	0.65	**0.71**	8.6	0.7	0.7
NERC-Total	**547**	**583**	**6.6**	**552**	**5.6**

Winter Peak Demand	1987/88 Actual[a]	1988/89 Actual[a]	Actual Change (%)	1988/89 Forecast[b]	Actual vs Forecast (%)
NERC-U.S.	448	**467**	4.1	457	2.2
NERC-Canada	70	**73**	3.4	71	2.8
NERC-Mexico[c]	0.46	**0.53**	15.8	0.52	1.2
NERC-Total	**519**	**540**	**4.1**	**528**	**2.3**

Note: Figures are rounded. Percentages are based on complete data.

[a] Metered internal demands. Unadjusted for operator-controlled demand reductions, emergency operating procedures, or weather.

[b] Based on normal weather for each system within each NERC area.

[c] Northern portion of Baja California, Mexico only.

Figure 1

Summer/Winter Peak Demand Ratios (%)

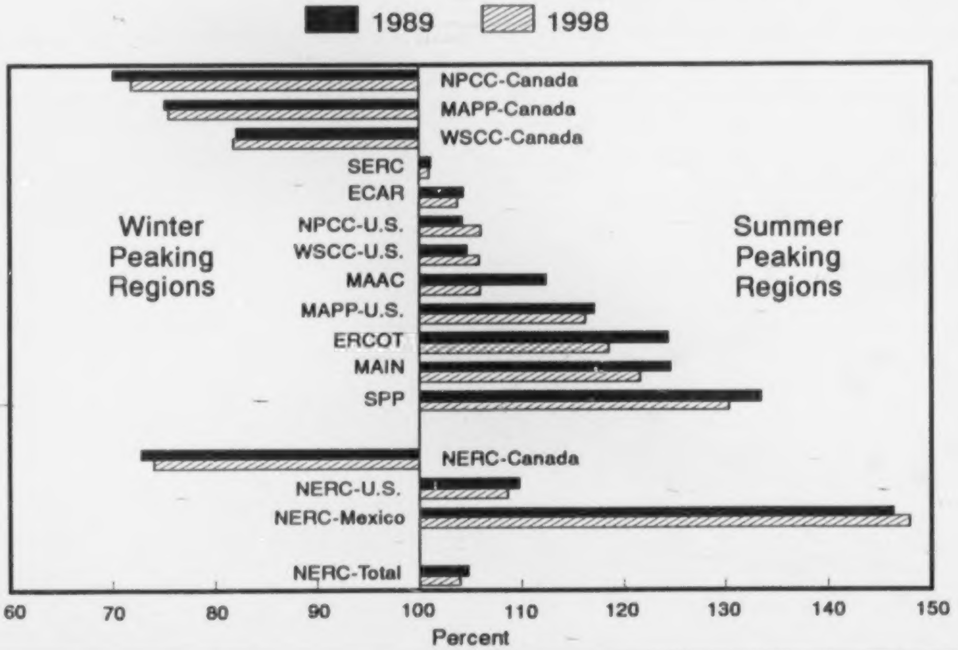

Table 2
Actual and Projected Peak Demands – Summer – MW
(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED										1989-1998 Average Annual Growth
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	(%)
NERC-U.S.												
ECAR	79149	75589	76977	78396	79685	81021	82292	83658	85018	86416	87694	1.7
ERCOT	40843	41169	41550	42840	43753	45049	46004	46515	47601	48939	50085	2.2
MAAC[a,b]	43110	41565	42236	42888	43547	44235	44907	45418	46122	46801	47365	1.5
MAIN	41139	38415	38967	39605	40235	40855	41513	42166	42825	43479	44181	1.6
Cmnwlth Edison	17459	16150	16450	16800	17150	17500	17850	18200	18550	18900	19300	2.0
East Missouri	7126	6920	7004	7079	7163	7247	7342	7446	7551	7666	7770	1.3
S Cent Illinois	7614	6943	7010	7098	7176	7221	7325	7426	7526	7622	7728	1.2
Wis-Upper Mich	8940	8402	8503	8628	8746	8887	8996	9094	9198	9291	9383	1.2
MAPP	24899	23796	24174	24527	24897	25269	25670	26114	26568	27037	27494	1.6
NPCC	45245	46836	48047	49311	50451	51587	52662	53770	54827	55816	56764	2.2
New York	25720	26070	26710	27350	27890	28380	28800	29230	29640	30070	30490	1.8
NEPOOL[b]	19525	20766	21337	21961	22561	23207	23862	24540	25187	25746	26274	2.6
SERC	115168[c]	115888	120346	122967	126315	129353	132320	135551	138966	142256	145368	2.6
Florida	26267	27319	28342	28672	29673	30622	31477	32417	33167	33976	34759	2.7
Southern	28037	28712	29706	30520	31302	31984	32695	33513	34385	35217	36089	2.6
TVA	21471	21367	21966	22388	22903	23454	24045	24651	25278	25918	26583	2.5
VACAR	39393	39105	40332	41387	42437	43293	44103	44970	46136	47145	47937	2.3
SPP	49356	49430	50664	51798	52812	53799	54831	55928	57014	58173	59295	2.0
Southeast	20906	20975	21520	21919	22289	22628	22974	23268	23701	24143	24587	1.8
West Central	16290	16225	16607	17014	17332	17652	18003	18486	18821	19224	19577	2.1
Northern	12160	12230	12537	12865	13191	13519	13854	14174	14492	14806	15131	2.4
WSCC[c]	90551	89247	91159	92419	93965	95567	97020	98685	100514	102475	104508	1.8
NW Pool	27478	27417	27909	28166	28489	28791	29194	29509	29984	30401	30788	1.3
Rocky Mt Area	6097	6266	6380	6531	6684	6838	6987	7134	7310	7457	7631	2.2
Ariz-N. Mex	11205	11764	12195	12527	12831	13153	13129	13415	13745	14096	14482	2.3
Calif-So. Nev	46127	44238	45152	45448	46207	47043	47895	48876	49982	51024	52121	1.8
TOTAL(U.S.)	529460	521935	534120	544751	555660	566735	577219	587805	599455	611392	622754	2.0
NERC-Canada												
MAPP	4223	4340	4483	4538	4691	4837	4962	5078	5201	5308	5405	2.5
NPCC	37966	38572	40064	40954	42314	43653	44666	45389	45902	46755	47502	2.3
New Brunswick	1543	1628	1674	1718	1766	1811	1858	1905	1952	2000	2048	2.6
Nova Scotia	1145	1247	1390	1429	1472	1515	1558	1609	1655	1700	1743	3.8
Ontario	19454	19363	19898	20185	20654	21127	21498	21825	21895	22194	22492	1.7
Quebec	15824	16334	17102	17622	18422	19200	19752	20050	20400	20861	21219	2.9
WSCC	10857	11540	11696	12054	12362	12706	13128	13473	13838	14223	14642	2.7
TOTAL(Canada)	53046	54452	56243	57546	59367	61196	62756	63940	64941	66286	67549	2.4
NERC-Mexico												
WSCC	705	762	821	883	960	1021	1091	1166	1246	1332	1424	7.2
TOTAL(Mexico)	705	762	821	883	960	1021	1091	1166	1246	1332	1424	7.2
NERC-Total	583211	577149	591184	603180	615987	628952	641066	652911	665642	679010	691727	2.0

[a] Peak demands are coincident.

[b] Load management loads (customer loads under the direct control of the electric utility system operator or interruptible by the customer at the utility's request in accordance with contractual arrangements) are not included.

[c] The sum of the subregional peak hour demands do not necessarily equal the coincident regional total because of subregional peak load diversity.

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Table 2A
Projected Total Load Management[a] – Summer – MW
(1989–1998 Forecast)

	PROJECTED									
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.										
ECAR	870	880	890	890	900	900	905	905	905	965
ERCOT	1377	1122	1131	1160	1450	1461	972	974	977	1032
MAAC[b]	934	1182	1382	1588	1754	1920	2226	2359	2496	2629
MAIN	1126	1145	1155	1157	1154	1140	1127	1114	1099	1093
Cmnwlth Edison	200	200	200	200	200	200	200	200	200	200
East Missouri	215	215	215	215	215	215	215	215	215	215
S Cent Illinois	405	400	394	381	365	351	338	325	310	294
Wis-Upper Mich	306	330	346	361	374	374	374	374	374	384
MAPP	965	1042	1098	1174	1232	1272	1328	1375	1422	1470
NPCC	1281	1622	1906	2182	2467	2717	2953	3197	3451	3652
New York	515	585	685	801	901	1002	1102	1213	1373	1493
NEPOOL	766	1037	1221	1381	1566	1715	1851	1984	2078	2159
SERC	2408	2775	2965	3251	3471	3539	3748	3961	4115	4213
Florida	1051	1263	1480	1744	1931	2115	2279	2448	2559	2613
Southern	303	405	405	405	405	405	405	405	405	405
TVA	826	847	785	767	759	610	626	641	657	673
VACAR	228	260	295	335	376	409	438	467	494	522
SPP	583	606	725	758	757	754	851	869	872	873
Southeast	242	243	235	239	242	245	248	251	252	253
West Central	139	139	240	240	240	216	291	288	267	244
Northern	202	224	250	279	275	293	312	330	353	376
WSCC[c]	1805	1940	1857	1843	1827	1458	1453	1460	1469	1455
NW Pool	1051	1065	947	968	940	940	940	940	949	934
Rocky Mt Area	164	163	164	164	164	165	166	166	167	168
Ariz-N. Mex	554	640	655	671	681	312	312	313	313	313
Calif-So. Nev	2	2	3	3	3	4	4	5	5	5
TOTAL(U.S.)	11349	12314	13109	14003	15012	15161	15563	16214	16806	17382
NERC-Canada										
MAPP	137	155	155	155	155	155	155	155	155	155
NPCC	1580	1632	1710	1841	2106	2458	2762	3065	3067	3070
New Brunswick	30	30	30	30	30	30	30	30	30	30
Nova Scotia	100	149	152	155	157	159	163	166	168	171
Ontario	775	778	828	856	869	869	869	869	869	869
Quebec	675	675	700	800	1050	1400	1700	2000	2000	2000
WSCC	94	95	99	102	105	105	105	105	105	105
TOTAL(Canada)	1811	1882	1964	2098	2366	2718	3022	3325	3327	3330
NERC-Mexico										
WSCC	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0
NERC-Total	13160	14196	15073	16101	17378	17879	18585	19539	20133	20712

[a] Load management includes only those customer loads under the direct control of the electric utility system operator or interruptible by the customer at the utility's request in accordance with contractual arrangements.

[b] Load management loads have already been subtracted from the peak demands for MAAC on Table 2.

[c] Includes the interruptible demand portion of load management, but excludes those customer loads under the direct control of the electric utility system operator. Since the subregional peak hour demands may occur in different months than the coincident total WSCC-U.S. peak hour demand, the sum of the individual load management loads based on those peak hour demands may not always equal the WSCC-U.S. total.

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Table 3
Actual and Projected Peak Demands – Winter – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED										1989/90-1998/99 Average Annual Growth (%)
	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	
NERC-U.S.												
ECAR	68977	72412	73700	75039	76395	77657	79034	80445	81824	83122	84483	1.7
ERCOT	34628	33092	33946	34890	36281	37275	37807	38887	40155	41328	42264	2.8
MAAC[a,b]	36363	36980	37806	38621	39485	40392	41239	42118	43008	43864	44691	2.1
MAIN	30631	30835	31419	31945	32511	33141	33774	34390	35015	35677	36331	1.8
Cmnwlth Edison	12126	12140	12380	12630	12880	13140	13400	13670	13940	14220	14500	2.0
East Missouri	5433	5586	5730	5860	5998	6132	6276	6410	6554	6698	6842	2.3
S Cent Illinois	5638	5745	5819	5901	5956	6066	6173	6282	6384	6499	6615	1.6
Wis-Upper Mich	7434	7364	7490	7554	7677	7803	7925	8028	8137	8260	8374	1.4
MAPP	20162	20317	20709	21065	21407	21722	22075	22449	22862	23249	23642	1.7
NPCC	42951	44954	46269	47113	47938	48727	49735	50687	51612	52457	53527	2.0
New York	23227	23510	24090	24600	25070	25540	25970	26380	26810	27180	27620	1.8
NEPOOL	19724	21444	22179	22513	22868	23187	23765	24307	24802	25277	25907	2.1
SERC	108649[c]	114642	117399	120765	124182	127506	130874	134208	137605	140524	143956	2.6
Florida	28975	30412	31031	32188	33427	34506	35655	36724	37698	38624	39569	3.0
Southern	23796	24455	25192	25878	26453	27085	27807	28592	29389	30214	30961	2.7
TVA	20422	20977	21312	21732	22196	22695	23213	23787	24380	24984	25605	2.2
VACAR	37555	38798	39864	40967	42106	43220	44199	45105	46138	46702	47821	2.4
SPP	35649	37041	38060	38992	39779	40654	41572	42535	43514	44521	45505	2.3
Southeast	15774	16104	16609	16923	17190	17512	17866	18117	18491	18868	19257	2.0
West Central	11391	12028	12331	12701	12984	13297	13612	14080	14449	14831	15177	2.6
Northern	8484	8909	9120	9368	9605	9845	10094	10338	10574	10822	11071	2.4
WSCC[c]	88523	85256	86440	87622	89056	90711	92176	93939	95723	97486	98771	1.6
NW Pool	38945	35650	36148	36354	36790	37320	37735	38227	38774	39220	38531	0.9
Rocky Mt Area	6213	6221	6363	6524	6693	6860	7034	7222	7393	7587	7711	2.4
Ariz-N. Mex	9088	9129	9382	9637	9900	10373	10670	10901	11171	11461	11759	2.9
Calif-So. Nev	35011	35024	35592	36004	36585	37198	37684	38443	39233	39997	40770	1.7
TOTAL(U.S.)	466533	475529	485748	496052	507034	517785	528286	539658	551318	562228	573170	2.1
NERC-Canada												
MAPP	5503	5776	5933	6033	6238	6421	6582	6731	6891	7027	7153	2.4
NPCC	53363	54981	56316	57790	59500	60849	61936	62841	63819	64899	66084	2.1
New Brunswick	2385	2480	2565	2650	2737	2816	2895	2975	3053	3131	3208	2.9
Nova Scotia	1619	1734	1835	1891	1947	2003	2070	2129	2188	2247	2305	3.2
Ontario	22933	23450	23921	24616	25205	25673	26075	26252	26423	26717	27147	1.6
Quebec	26426	27317	27995	28633	29611	30357	30896	31485	32155	32804	33424	2.3
WSCC	13734	14038	14352	14755	15080	15575	15986	16450	16880	17373	17893	2.7
TOTAL(Canada)	72600	74795	76601	78578	80818	82845	84504	86022	87590	89299	91130	2.2
NERC-Mexico												
WSCC	527	521	559	603	664	703	748	797	848	904	963	7.1
TOTAL(Mexico)	527	521	559	603	664	703	748	797	848	904	963	7.1
NERC-Total	539660	550845	562908	575233	588516	601333	613538	626477	639756	652431	665263	2.1

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[a] See footnote a of Table 2.

[b] See footnote b of Table 2.

[c] See footnote c of Table 2.

North American
Electric
Reliability
Council

Table 3A
Projected Total Load Management[a] – Winter – MW
(1989–1998 Forecast)

	PROJECTED									
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.										
ECAR	880	890	895	905	910	910	910	915	980	980
ERCOT	1090	1085	1100	1370	1361	853	836	819	853	881
MAAC[b]	409	453	491	535	562	600	631	665	693	725
MAIN	1034	1046	1052	1054	1057	1049	1042	1033	1033	1058
Cmnwlth Edison	200	200	200	200	200	200	200	200	200	200
East Missouri	215	215	215	215	215	215	215	215	215	215
S Cent Illinois	284	275	267	256	246	238	231	222	212	217
Wis-Upper Mich	335	356	370	383	396	396	396	396	406	426
MAPP	1029	1084	1140	1193	1261	1308	1356	1399	1443	1477
NPCC	1179	1464	1688	1949	2156	2368	2601	2786	2959	3071
New York	235	285	345	431	491	572	682	783	893	963
NEPOOL	944	1179	1343	1518	1665	1796	1919	2003	2066	2108
SERC	2885	3289	3629	4030	4287	4643	4851	5076	5241	5375
Florida	1447	1673	1933	2262	2510	2715	2904	3092	3169	3237
Southern	303	405	405	405	405	405	405	405	405	405
TVA	643	625	609	603	606	762	781	799	818	838
VACAR	492	586	682	760	766	761	761	780	849	895
SPP	366	363	470	481	460	447	533	519	510	501
Southeast	102	93	93	93	93	93	93	93	93	93
West Central	118	118	218	218	218	194	269	244	219	194
Northern	146	152	159	170	149	160	171	182	198	214
WSCC[c]	1638	1654	1588	1558	1804	1806	1808	1804	1790	1794
NW Pool	1102	1102	1026	985	985	985	985	980	965	948
Rocky Mt Area	147	148	148	149	149	150	151	151	152	153
Ariz-N. Mex	387	401	417	424	666	685	686	686	687	688
Calif-So. Nev	2	2	3	3	3	4	4	5	5	5
TOTAL(U.S.)	10510	11328	12053	13075	13858	13984	14568	15016	15502	15862
NERC-Canada										
MAPP	137	155	155	155	155	155	155	155	155	155
NPCC	1619	1669	1837	2099	2451	2753	3057	3060	3062	3065
New Brunswick	30	30	30	30	30	30	30	30	30	30
Nova Scotia	147	149	152	155	157	159	163	166	168	171
Ontario	767	790	855	864	864	864	864	864	864	864
Quebec	675	700	800	1050	1400	1700	2000	2000	2000	2000
WSCC	95	99	102	105	105	105	105	105	105	105
TOTAL(Canada)	1851	1923	2094	2359	2711	3013	3317	3320	3322	3325
NERC-Mexico										
WSCC	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0
NERC-Total	12361	13251	14147	15434	16569	16997	17885	18336	18824	19187

[a] See footnote a of Table 2A.

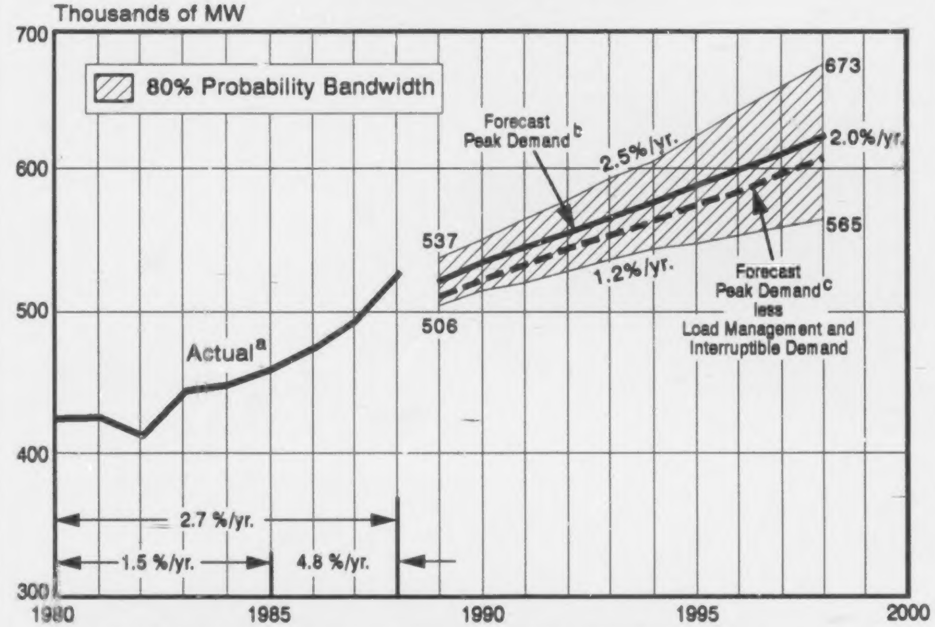
[b] Load management loads have already been subtracted from the peak demands for MAAC in Table 3.

[c] See footnote c of Table 2A.

NERC-U.S.

Figure 2

Summer Peak Demands
(1989 – 1998 Forecast)

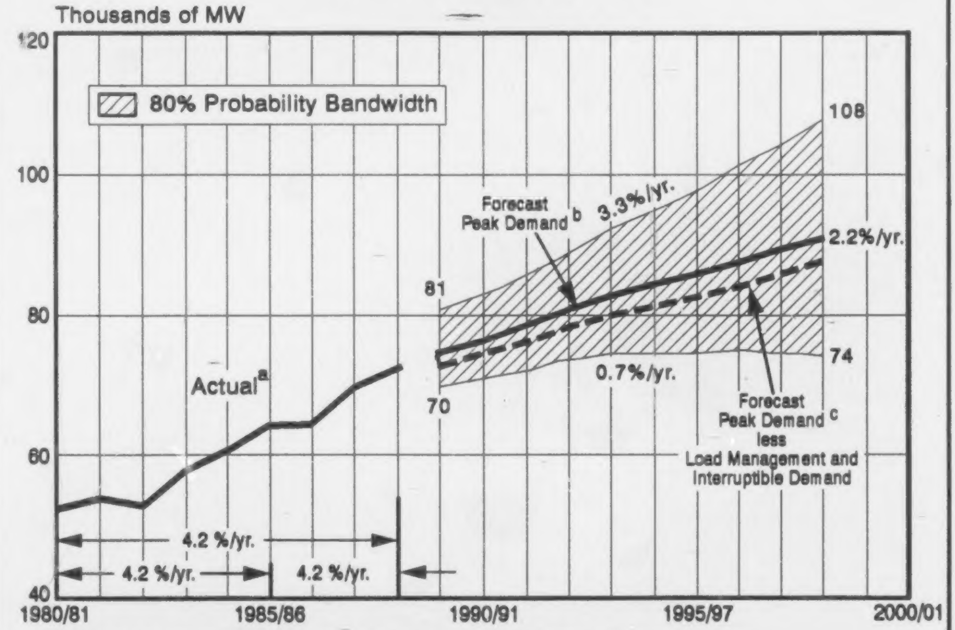


[a] Unadjusted for operator-controlled demand reductions, emergency operating procedures, or weather.
[b] Item 3a, line 03, April 1, 1989 IE-411 reports. [c] Item 3a, line 06, April 1, 1989 IE-411 reports.

NERC-Canada

Figure 3

Winter Peak Demands
(1989 – 1998 Forecast)



[a] Unadjusted for operator-controlled demand reductions, emergency operating procedures, or weather.
[b] Item 3a, line 03, April 1, 1989 IE-411 reports. [c] Item 3a, line 06, April 1, 1989 IE-411 reports.

The annual net energy for load (NEL) represents the annual electrical energy needed to serve the utilities' customers. NEL includes transmission losses and represents the electrical energy generated by the utilities' own generating sources plus electrical energy purchases from other utilities and non-utility generators, less electrical energy sales to other utilities. NEL does not include energy pumping requirements for pumped storage generating facilities.

1988 Actual Net Energy for Load

The 1988 NELs for the NERC areas of the United States, Canada, Mexico, and NERC as a whole exceeded their respective 1987 NEL values and their respective 1988 forecasts. Details of these comparisons are shown in Table 4.

1989-1998 Projections

The NERC-Total NEL is projected to increase by 650 million MWh over the forecast period – corresponding to an average annual growth rate of 2.1%. As in the case for peak demands, the higher annual NEL growth rates for NERC-Canada (2.4%) and NERC-Mexico (7.6%) are offset by the NERC-U.S. annual growth rate of 2%. Details of the regional and subregional 1989-1998 NEL projections, their associated average annual growth rates, and 1988's NEL actuals are shown in Table 5.

Annual Load Factors

The 1989 annual load factors range from 65% or more in WSCC-Canada, WSCC-U.S., and ECAR to about 55% in SPP. By 1998, most annual load factors are expected to increase. Projected annual load factors for the NERC Regions as well as for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total are summarized in Figure 4. The load factors are calculated by dividing the annual NEL of Table 5 by the product of peak demand (the greater of the summer or winter peak demands of Table 2 or 3) and 8,760 hours per year. This load factor ratio is then multiplied by 100 to express the load factor in percent.

Forecast Uncertainty

Similar to peak demands, to illustrate the uncertainty in the forecasting process, high and low probability bounds have been defined for the NERC-U.S. and NERC-Canada annual NEL projections as shown in Figures 5 and 6, respectively. These figures also show recent historical average annual growth rates. The forecast bounds are defined such that there is an 80% probability that future annual NEL for the United States and Canada will fall within the bounds of their respective bandwidths.

In defining the NERC-U.S. NEL bandwidth, regression analysis was used to establish a relationship between annual electrical energy and key energy-related variables. The established relationship between the variables and NEL was used with high and low estimates of the variables to develop corresponding high and low bounds for the NEL projections. The upper bound implies an annual average growth rate of 2.7%, while the lower bound indicates a 1.1% per year rate. There is a 10% chance that future annual energy for load will exceed the upper bound, and a 10% chance that annual energy needs will be less than the lower bound. The Canada and U.S. NEL bandwidth calculation methodologies are similar except for the energy-related variables. For Canada, the annual NEL bandwidth growth rates range from 0.6% to 3.6% per year.

It would be incorrect and misleading to apply the absolute value or percentage range of the energy forecast bandwidths in Figures 5 and 6 to the annual NEL forecasts of any NERC Region, subregion, group of utilities, or individual utility. The high and low bounds represent a composite of all member systems in each country and apply only to NERC-U.S. and NERC-Canada aggregated projections for peak demand.

Table 4 — 1988 Annual Net Energy for Load — Millions of MWh

Location	1987 Actual	1988 Actual	Actual Change %	1988 Forecast	Actual vs Forecast %
NERC-U.S.	2,644	**2,769**	4.7	2,690	2.9
NERC-Canada	375	**404**	7.7	391	3.2
NERC-Mexico[a]	3.2	**3.5**	9.5	3.4	1.7
NERC-Total	**3,021**	**3,176**	**5.1**	**3,084**	**3.0**

Note: Figures are rounded. Percentages are based on complete data.
[a] Northern portion of Baja California, Mexico only.

Figure 4

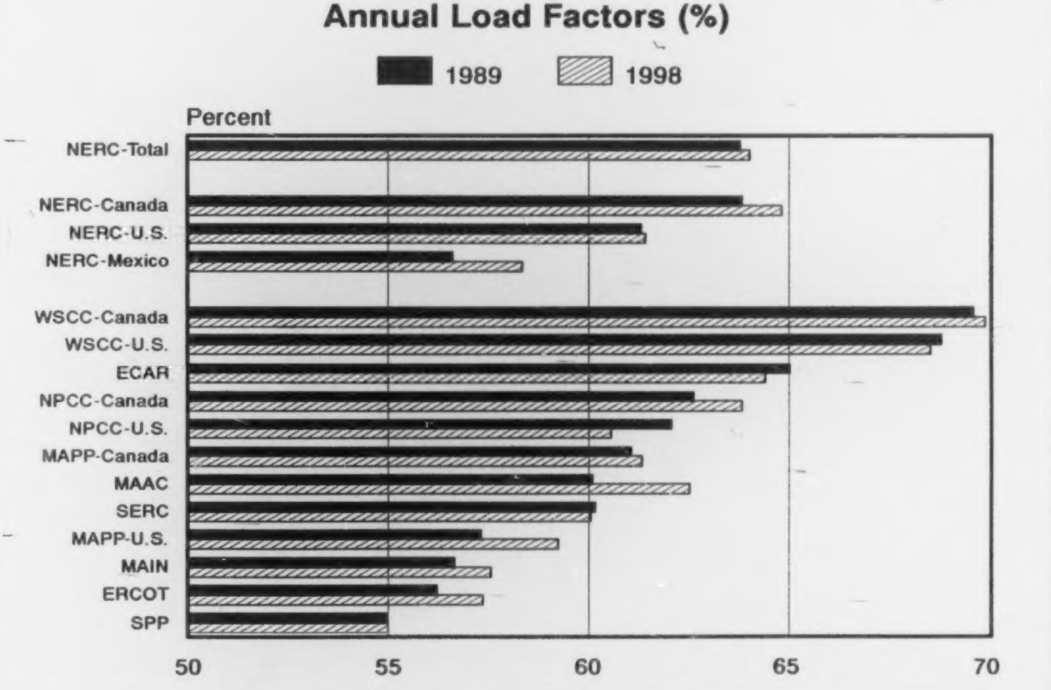
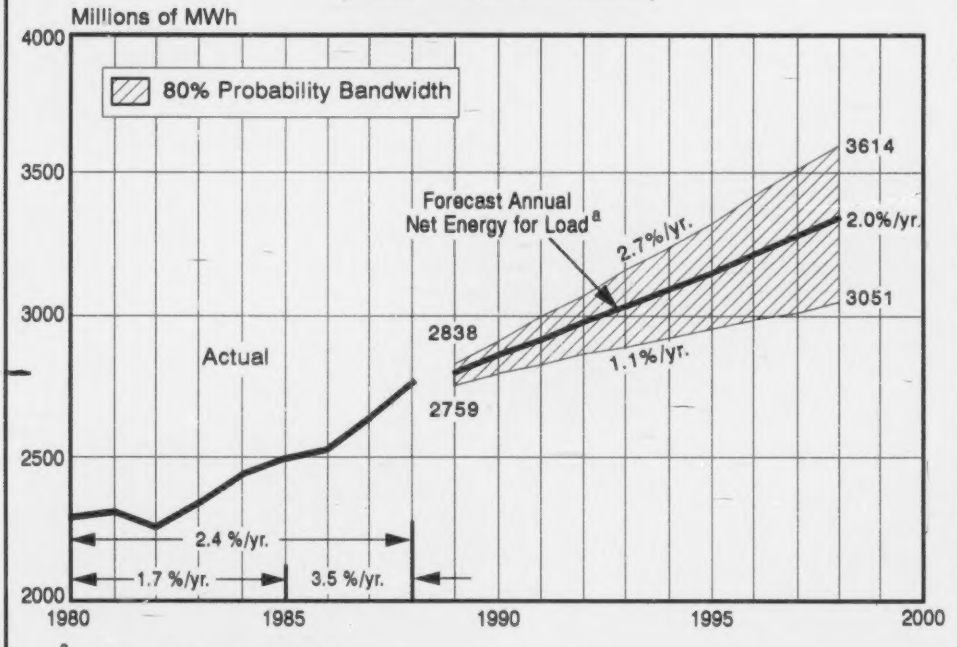


Table 5
Actual and Projected Annual Net Energy for Load – Millions kWh
(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED										1989–1998 Average Annual Growth
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	(%)
NERC-U.S.												
ECAR	429198	430377	439118	445789	452652	459313	466098	473205	480621	488029	494737	1.6
ERCOT	201472	202683	206748	211896	217033	224294	228650	231794	237751	245158	251636	2.4
MAAC	218636	218772	223546	228604	232886	237123	241774	246104	250705	255088	259306	1.9
MAIN	194101	190644	194305	197654	201123	204547	208086	211588	215228	218916	222720	1.7
Cmnwlth Edison	78296	75500	76750	78300	79850	81450	83100	84750	86450	88200	89950	2.0
East Missouri	33048	33142	33877	34440	35056	35663	36284	36942	37614	38319	39050	1.8
S Cent Illinois	35326	34753	35312	35858	36356	36683	37267	37906	38545	39177	39851	1.5
Wis-Upper Mich	47431	47249	48366	49056	49861	50751	51435	51990	52619	53220	53869	1.5
MAPP	121737	119456	122250	124116	126787	129197	131733	134399	137249	139975	142664	2.0
NPCC	250132	254540	260262	266307	271441	276161	281357	286727	291732	296316	301044	1.9
New York	140048	141600	145100	148700	151700	154250	156600	159000	161350	163550	166000	1.8
NEPOOL	110084	112940	115162	117607	119741	121911	124757	127727	130382	132766	135044	2.0
SERC	593948	610556	629185	643097	661718	678638	695640	712454	730517	747535	764550	2.5
Florida	133119	138776	143965	147233	152048	157062	161677	166500	170835	175088	179722	2.9
Southern	143081	147207	152086	155289	160344	163627	167098	171286	175837	180197	184735	2.6
TVA	115968	118066	121273	124458	126712	129292	132097	135026	138164	141350	144610	2.3
VACAR	201780	206507	211861	216117	222614	228657	234768	239642	245681	250900	255483	2.4
SPP	237179	237963	243403	247959	253091	257821	263068	268215	274063	279859	285543	2.0
Southeast	107537	108341	110451	112301	114231	115726	117320	118846	120879	123106	125326	1.6
West Central	76892	76388	78452	79667	81382	83223	85359	87556	89874	92080	94066	2.3
Northern	52750	53234	54500	55991	57478	58872	60389	61813	63310	64673	66151	2.4
WSCC	522455	537481	546651	554987	564972	573168	583230	593277	604650	615511	627050	1.7
NW Pool	198092	202802	205905	208458	210814	212454	215226	217649	220674	223039	225571	1.2
Rocky Mt Area	37027	37713	38663	39435	40410	41531	42590	43459	44533	45409	46423	2.3
Ariz-N. Mex	58393	60708	63380	65352	67259	69002	70909	72719	74645	76721	78795	2.9
Calif-So. Nev	228943	236258	238703	241742	246489	250181	254505	259450	264798	270342	276261	1.8
TOTAL(U.S.)	2768858	2802472	2865468	2920409	2981703	3040262	3099636	3157763	3222516	3286387	3349250	2.0
NERC-Canada												
MAPP	29926	30888	31908	32303	33300	34421	35283	36114	37025	37752	38416	2.5
NPCC	291515	301564	311259	320087	328880	339230	345769	351661	356195	363178	369326	2.3
New Brunswick	12183	12417	12820	13199	13593	13979	14358	14739	15123	15510	15894	2.8
Nova Scotia	8549	8922	9668	10018	10305	10580	10823	11107	11394	11670	11937	3.3
Ontario	134394	136927	140173	143634	148331	152292	155447	158183	159179	161686	164087	2.0
Quebec	136389	143298	148598	153236	156651	162379	165141	167632	170499	174312	177408	2.4
WSCC	82154	85559	87336	89907	92524	95078	98188	100754	103581	106397	109502	2.8
TOTAL(Canada)	403595	418011	430503	442297	454704	468729	479240	488529	496801	507327	517244	2.4
NERC-Mexico												
WSCC	3472	3779	4065	4372	4701	5057	5439	5850	6292	6767	7278	7.6
TOTAL(Mexico)	3472	3779	4065	4372	4701	5057	5439	5850	6292	6767	7278	7.6
NERC-Total	3175925	3224262	3300036	3367078	3441108	3514048	3584315	3652142	3725609	3800481	3873772	2.1

NERC-U.S. Figure 5

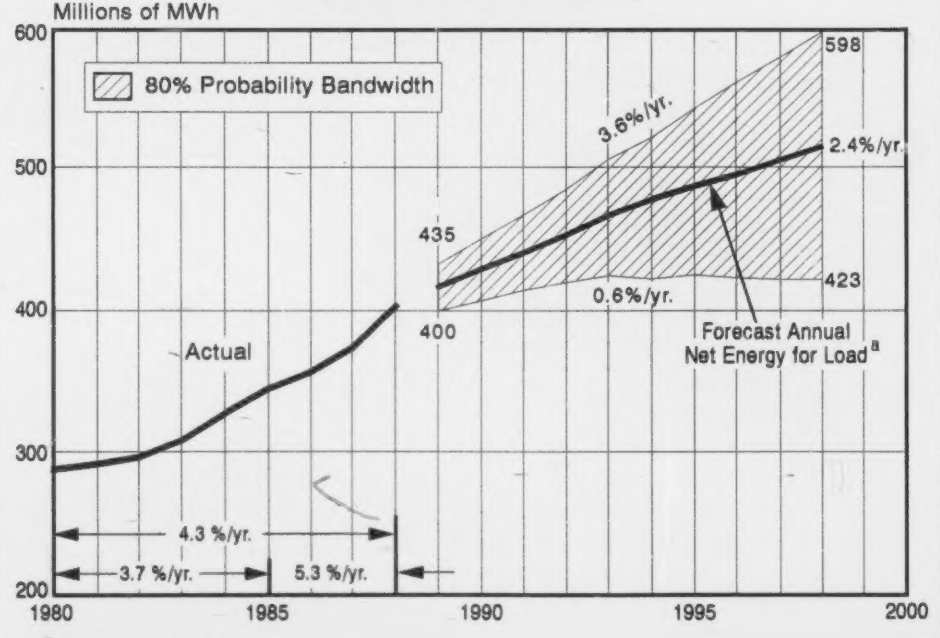
Annual Net Energy for Load
(1989 – 1998 Forecast)



[a]Item 1, line 09, April 1, 1989, IE-411 reports.

NERC-Canada Figure 6

Annual Net Energy for Load
(1989 – 1998 Forecast)



[a]Item 1, line 09, April 1, 1989, IE-411 reports.

The planned capacity resources include the total dependable generating capacity that is existing, presently under construction, or in various stages of planning, plus any scheduled capacity purchases from other utilities or non-utility generators, less any capacity sales. The realization of these plans for capacity resources is contingent upon the completion, as scheduled, of utility and non-utility generating units which are in various stages of planning, design, licensing, or construction.

1989-1998 Projections

To serve projected demands, NERC systems are planning to increase their net capacity resources by about 94,800 MW (summer) and 90,200 (winter) over the 1989-1998 period – corresponding to NERC-Total average annual growth rates of 1.3% (summer) and 1.2% (winter). Comparable planned capacity resources and average annual growth rates for the Regions and their subregions are shown in Tables 6 and 7. The planned capacity resources in winter are generally greater than those of the previous summer season.

The installed generating capacity included in these planned capacity resources and a breakdown of this generating capacity by fuel are included in the "Installed Generating Capacity" portion of this report. Appendix A also includes the regional distribution of this capacity by fuel for 1988 actual and the 1989-1998 period.

Estimated Capacity Margins

To adequately supply projected demand requirements, planned capacity resources must also include a sufficient capacity margin above the demand to provide for scheduled generating unit maintenance, forced outages of generating units, equipment deratings due to various causes, differences between actual demands and those projected, and other system operating requirements.

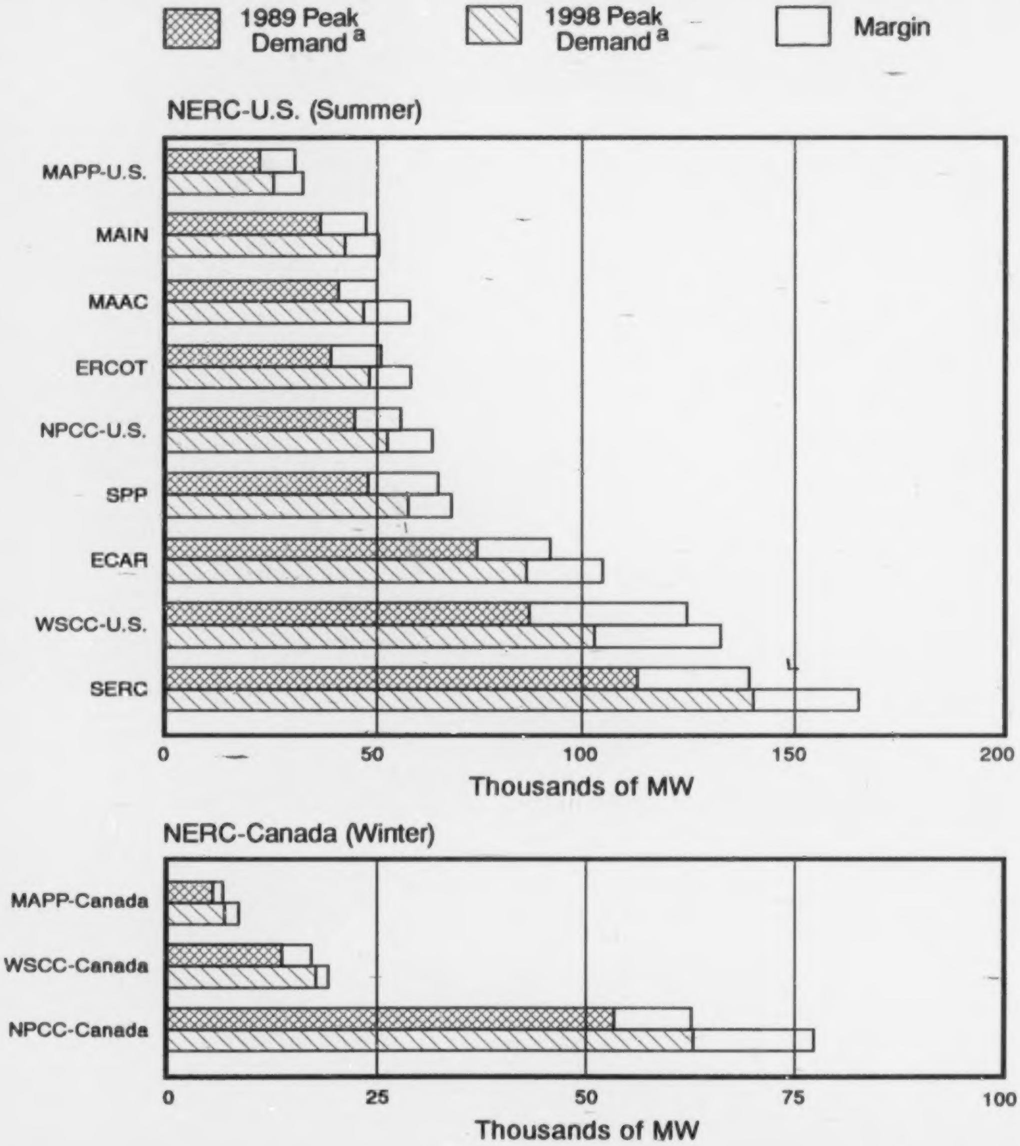
The amount by which the planned capacity resources exceeds the projected peak demand is called the margin. Summer and winter margins in megawatts for the NERC areas of the United States and Canada are shown in Figure 7 for 1989 and 1998. In calculating these margins, the peak demands of Tables 2 (summer) and 3 (winter) have been reduced by the total load management values of Table 2A (summer) and 3A (winter), respectively. It is these adjusted peak demands, or net internal demands, for which utilities generally plan capacity resources. The summer (United States) and winter (Canada) net internal peak demands were then subtracted from the planned capacity resources of Tables 6 (United States) and 7 (Canada) to obtain the megawatt margins in Figure 7.

Capacity margin in percent has been calculated by dividing the margin by total planned capacity resources and multiplying by 100. Estimated capacity margins for the NERC areas of the United States, Canada, and Mexico are shown in Tables 8 (summer) and 9 (winter).

The margins (megawatts) of Figure 7 and the capacity margins (%) of Tables 8 and 9 are not in themselves sufficient indexes of electric supply adequacy, security, or reliability. Capacity margins vary from Region to Region due to variations in regional characteristics, which, for example, include the duration of the peak demand season, the differences in the ages, sizes, and types of generating units, the number and capability of transmission interconnections, the physical characteristics of the Region and the associated geographical configuration of the electric utility systems, and the operating agreements among interconnected systems. However, the margin and capacity margin projections as shown are consistent with the Regional Reliability Councils' responses to DOE's IE-411 data report requests, and they are included here for convenience.

Figure 7

Estimated Margins at the Time of Regional Peak Demand



[a] Peak demand less total load management (customer loads under the direct control of the electric utility system operator or interruptible by the customer at the utility's request in accordance with contractual arrangements).

Table 6
Planned Capacity Resources – Summer – MW

(Utility and Non-Utility[a] Generating Capacity+Scheduled Capacity Purchases-Capacity Sales)
(1989–1998 Forecast)

North American **E**lectric **R**eliability **C**ouncil	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1989-1998 Average Annual Growth (%)
	PROJECTED										
NERC-U.S.											
ECAR	92713	96795	99569	100041	100948	101584	102396	103548	104514	104881	1.4
ERCOT	51669	52942	52904	54252	54728	55211	55441	56209	58166	58953	1.5
MAAC	50040	51718	52897	54630	55371	56212	56437	57076	57849	58283	1.7
MAIN	48355	48571	48903	48917	49337	49474	49670	49811	49869	50495	0.5
Cmnwlth Edison	21957	21952	21952	21972	21972	21972	21972	21872	21685	21965	0.0
East Missouri	7633	7937	8012	8043	8308	8313	8366	8434	8569	8689	1.5
S Cent Illinois	8969	9008	9241	9247	9316	9275	9237	9253	9299	9384	0.5
Wis-Upper Mich	9796	9674	9698	9655	9741	9914	10095	10252	10316	10457	0.7
MAPP	30958	30959	31040	31223	31767	31771	32066	32288	32564	33055	0.7
NPCC	56512	59880	62550	62576	62701	62411	63153	64020	64001	64006	1.4
New York	32434	34057	34934	35575	36001	36001	36786	37653	37653	37698	1.7
NEPOOL	24078	25823	27616	27001	26700	26410	26367	26367	26348	26308	1.0
SERC	140228	142825	145514	148689	152382	155071	158119	161666	163235	166380	1.9
Florida	32493	32742	33034	33418	34471	35094	35769	36720	36978	37160	1.5
Southern	35026	35075	36012	36092	36982	38422	39305	40373	41326	42469	2.2
TVA	25988	27053	27053	28223	29288	29288	30353	31523	31523	32735	2.6
VACAR	46721	47955	49415	50956	51641	52267	52692	53050	53408	54016	1.6
SPP	65666	66070	66619	66503	66741	66909	67451	67673	68098	68636	0.5
Southeast	27495	27941	28081	27710	27540	27394	27606	27761	27720	27672	0.1
West Central	22158	21966	22421	22419	22508	22642	22676	22642	22857	23171	0.5
Northern	16013	16163	16117	16374	16693	16873	17169	17270	17521	17793	1.2
WSCC[b]	125224	127683	128838	129520	130133	131077	131773	131662	132707	133372	0.7
NW Pool	44216	44231	44065	44153	44192	43214	43379	43531	43673	43689	-0.1
Rocky Mt Area	8947	8831	8942	9038	9141	9675	9739	9731	9787	10273	1.5
Ariz-N. Mex	14945	15787	15837	16306	16408	16050	16071	16251	16311	16286	1.0
Calif-So. Nev	59509	61815	63001	63368	63731	63891	63797	64721	65770	66102	1.2
TOTAL(U.S.)	661365	677443	688834	696351	704108	709720	716506	723953	731003	738061	1.2
NERC-Canada											
MAPP	6701	6701	7467	8046	8212	8304	8350	8626	8626	8626	2.8
NPCC	58685	62082	63647	66755	66772	67929	68311	70631	71090	72334	2.4
New Brunswick	2884	3124	3084	3324	3424	3924	3844	3844	3844	4294	4.5
Nova Scotia	1989	1989	1989	2139	2139	2289	2289	2439	2439	2589	3.0
Ontario	26642	29423	30847	32069	32131	32251	32794	32939	33088	33108	2.4
Quebec	27170	27546	27727	29223	29078	29465	29384	31409	31719	32343	2.0
WSCC	17817	18273	18547	19058	19058	19053	19053	19125	19472	19639	1.1
TOTAL(Canada)	83203	87056	89661	93859	94042	95286	95714	98382	99188	100599	2.1
NERC-Mexico											
WSCC	810	960	1110	1162	1214	1364	1364	1514	1514	1514	7.2
TOTAL(Mexico)	810	960	1110	1162	1214	1364	1364	1514	1514	1514	7.2
NERC-Total	745378	765459	779605	791372	799364	806370	813584	823849	831705	840174	1.3

[a] Non-utility generating capacity includes the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak.

[b] Since the subregional peak hour demands may occur in different months than the coincident total WSCC-U.S. peak hour demand, the sum of the individual subregional resources based on those peak hour demands may not always equal the WSCC-U.S. total. Also, the sum of the subregional resources does not equal the total WSCC-U.S. resources because in some cases firm capacity transfers have been reported for which either the buying or the selling system has not yet been identified.

Table 7
Planned Capacity Resources – Winter – MW
(Utility and Non-Utility[a] Generating Capacity+Scheduled Capacity Purchases-Capacity Sales)
(1989–1998 Forecast)

North American Electric Reliability Council		PROJECTED									1989/90-1998/99 Average Annual Growth (%)
	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	
NERC-U.S.											
ECAR	97370	99016	101154	101639	102451	103675	104292	105367	106092	106638	1.0
ERCOT	52653	53268	54331	54905	54601	55266	56094	57096	58645	59697	1.4
MAAC	52659	54630	55684	57207	58152	58847	59132	59918	60873	61454	1.7
MAIN	49028	49511	49543	49705	50033	50291	50412	50447	50180	51322	0.5
Cmnwlth Edison	22501	22501	22506	22521	22521	22521	22421	22234	21662	22492	0.0
East Missouri	7403	7760	7885	7915	8193	8398	8451	8521	8656	8776	1.9
S Cent Illinois	9430	9563	9360	9370	9423	9317	9243	9238	9284	9385	-0.1
Wis-Upper Mich	9694	9687	9792	9899	9896	10055	10297	10454	10578	10669	1.1
MAPP	30963	31252	31271	31623	32519	32550	32888	32985	33135	33821	1.0
NPCC	59033	61407	61650	62170	62158	62030	62767	63634	63561	63554	0.8
New York	32730	33987	34849	35490	35916	35916	36646	37513	37513	37558	1.5
NEPOOL	26303	27420	26801	26680	26242	26114	26121	26121	26048	25996	-0.1
SERC	143339	145241	147638	152057	154551	158580	161702	164027	166742	168733	1.8
Florida	33856	34064	34399	34147	35719	36715	37295	38178	38406	38616	1.5
Southern	34970	35156	36018	36498	36788	38228	39294	40378	41295	42468	2.2
TVA	27305	27305	27305	29540	29540	30605	31775	31775	32987	32987	2.1
VACAR	47208	48716	49916	51872	52504	53032	53338	53696	54054	54662	1.6
SPP	66439	66386	66690	66465	66965	67465	67974	68050	68049	69053	0.4
Southeast	27794	27890	27741	27510	27387	27565	27765	27695	27398	27736	0.0
West Central	22259	22083	22542	22290	22593	22709	22742	22791	22835	23228	0.5
Northern	16386	16413	16407	16665	16985	17191	17467	17564	17816	18089	1.1
WSCC[b]	129188	130845	131707	132263	133231	134415	135375	136819	137499	137363	0.7
NW Pool	47588	47411	47718	47675	48480	48718	48898	49124	49265	48966	0.3
Rocky Mt Area	8924	8857	8967	9072	9196	9734	9804	9806	9882	10358	1.7
Ariz-N. Mex	14810	15193	14983	15909	16215	16216	16280	16451	16486	16461	1.2
Calif-So. Nev	56493	58979	59230	59599	59766	59955	59870	60617	61838	62167	1.1
TOTAL(U.S.)	680672	691556	699668	708034	714661	723119	730636	738343	744776	751635	1.1
NERC-Canada											
MAPP	6678	6918	7568	8147	8197	8289	8339	8619	8619	8619	2.9
NPCC	62506	65127	67330	69229	70158	70598	72928	72938	74207	77146	2.4
New Brunswick	3074	3084	3324	3424	3924	3844	3844	3844	4294	4294	3.8
Nova Scotia	1989	1989	2139	2139	2289	2289	2439	2439	2589	2739	3.6
Ontario	27994	30510	31671	32762	32637	32998	33274	33474	33494	34264	2.3
Quebec	29449	29544	30196	30904	31308	31467	33371	33181	33830	35849	2.2
WSCC	17151	17561	18072	18072	18067	18067	18149	18489	18589	19109	1.2
TOTAL(Canada)	86335	89606	92970	95448	96422	96954	99416	100046	101415	104874	2.2
NERC-Mexico											
WSCC	818	1118	1118	1171	1224	1374	1374	1524	1524	1524	7.2
TOTAL(Mexico)	818	1118	1118	1171	1224	1374	1374	1524	1524	1524	7.2
NERC-Total	767825	782280	793756	804653	812307	821447	831426	839913	847715	858033	1.2

[a] See footnote a of Table 6.
[b] See footnote b of Table 6.

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Table 8
Estimated Capacity Margins[a] – Summer[b] – %(Capacity Resources)
(1989–1998 Forecast)

PROJECTED

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.										
ECAR	19.4	21.4	22.2	21.2	20.6	19.9	19.2	18.8	18.2	17.3
ERCOT	23.0	23.6	21.2	21.5	20.3	19.3	17.9	17.0	17.5	16.8
MAAC	16.9	18.3	18.9	20.3	20.1	20.1	19.5	19.2	19.1	18.7
MAIN	22.9	22.1	21.4	20.1	19.5	18.4	17.4	16.3	15.0	14.7
Cmnwlth Edison	27.4	26.0	24.4	22.9	21.3	19.7	18.1	16.1	13.8	13.0
East Missouri	12.2	14.5	14.3	13.6	15.4	14.3	13.6	13.0	13.0	13.1
S Cent Illinois	27.1	26.6	27.5	26.5	26.4	24.8	23.3	22.2	21.4	20.8
Wis-Upper Mich	17.4	15.5	14.6	13.2	12.6	13.0	13.6	13.9	13.6	13.9
MAPP	26.3	25.3	24.5	24.0	24.3	23.2	22.7	22.0	21.3	21.3
NPCC	19.4	22.5	24.2	22.9	21.7	20.0	19.5	19.4	18.2	17.0
New York	21.2	23.3	23.7	23.9	23.7	22.8	23.5	24.5	23.8	23.1
NEPOOL	16.9	21.4	24.9	21.6	18.9	16.1	13.9	12.0	10.2	8.3
SERC	19.1	17.7	17.5	17.2	17.4	17.0	16.6	16.5	15.4	15.2
Florida	19.2	17.3	17.7	16.4	16.8	16.3	15.7	16.3	15.0	13.5
Southern	18.9	16.5	16.4	14.4	14.6	16.0	15.8	15.8	15.8	16.0
TVA	21.0	21.9	20.1	21.6	22.5	20.0	20.8	21.8	19.9	20.8
VACAR	16.8	16.4	16.8	17.4	16.9	16.4	15.5	13.9	12.7	12.2
SPP	25.6	24.2	23.3	21.7	20.5	19.2	18.3	17.0	15.9	14.9
Southeast	24.6	23.9	22.8	20.4	18.7	17.0	16.6	15.5	13.8	12.1
West Central	27.4	25.0	25.2	23.8	22.6	21.4	19.8	18.1	17.1	16.6
Northern	24.9	23.8	21.7	21.1	20.7	19.6	19.3	18.0	17.5	17.1
WSCC	30.2	30.1	29.7	28.9	28.0	27.1	26.2	24.8	23.9	22.7
NW Pool	40.4	39.3	38.2	37.7	37.0	34.6	34.1	33.3	32.6	31.7
Rocky Mt Area	31.8	29.6	28.8	27.9	27.0	29.5	28.5	26.6	25.5	27.4
Ariz-N. Mex	25.0	26.8	25.0	25.4	24.0	20.1	18.5	17.3	15.5	13.0
Calif-So. Nev	25.7	27.0	27.9	27.1	26.2	25.0	23.4	22.8	22.4	21.2
TOTAL(U.S.)	22.7	22.8	22.6	22.0	21.4	20.5	19.8	19.1	18.3	17.6
NERC-Canada										
MAPP	37.3	35.4	41.3	43.6	43.0	42.1	41.0	41.5	40.3	39.1
NPCC	37.0	38.1	38.3	39.4	37.8	37.9	37.6	39.4	38.5	38.6
New Brunswick	44.6	47.4	45.3	47.8	48.0	53.4	51.2	50.0	48.8	53.0
Nova Scotia	42.3	37.6	35.8	38.4	36.5	38.9	36.8	39.0	37.2	39.3
Ontario	30.2	35.0	37.2	38.3	37.0	36.0	36.1	36.2	35.6	34.7
Quebec	42.4	40.4	39.0	39.7	37.6	37.7	37.6	41.4	40.5	40.6
WSCC	35.8	36.5	35.5	35.7	33.9	31.6	29.8	28.2	27.5	26.0
TOTAL(Canada)	36.7	37.6	38.0	39.0	37.4	37.0	36.4	37.4	36.5	36.2
NERC-Mexico										
WSCC	5.9	14.5	20.5	17.4	15.9	20.0	14.5	17.7	12.0	5.9
TOTAL(Mexico)	5.9	14.5	20.5	17.4	15.9	20.0	14.5	17.7	12.0	5.9
NERC-Total	24.2	24.5	24.4	24.0	23.3	22.5	21.8	21.3	20.5	19.8

[a] Capacity margin in percent is calculated by dividing the difference between planned capacity resources (Item 3A, line 13, IE-411 reports) and net internal demand (Item 3A, line 06, IE-411 reports) by planned capacity resources and multiplying by 100.

[b] At the time of summer peak demand.

Table 9
Estimated Capacity Margins[a] – Winter[b] – %(Capacity Resources)
(1989–1998 Forecast)

	PROJECTED									
	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
NERC-U.S.										
ECAR	26.5	26.5	26.7	25.7	25.1	24.6	23.7	23.2	22.6	21.7
ERCOT	39.2	38.3	37.8	36.4	34.2	33.1	32.2	31.1	31.0	30.7
MAAC	29.8	30.8	30.6	31.0	30.5	29.9	28.8	28.2	27.9	27.3
MAIN	39.2	38.7	37.6	36.7	35.9	34.9	33.8	32.6	31.0	31.3
Cmnwlth Edison	46.9	45.9	44.8	43.7	42.5	41.4	39.9	38.2	35.3	36.4
East Missouri	27.4	28.9	28.4	26.9	27.8	27.8	26.7	25.6	25.1	24.5
S Cent Illinois	42.1	42.0	39.8	39.2	38.2	36.3	34.5	33.3	32.3	31.8
Wis-Upper Mich	27.5	26.4	26.6	26.3	25.2	25.1	25.9	26.0	25.8	25.5
MAPP	37.7	37.2	36.3	36.1	37.1	36.2	35.9	34.9	34.2	34.5
NPCC	25.8	27.0	26.3	26.0	25.1	23.6	23.4	23.3	22.1	20.6
New York	28.9	30.0	30.4	30.6	30.3	29.3	29.9	30.6	29.9	29.0
NEPOOL	22.1	23.4	21.0	20.0	18.0	15.9	14.3	12.7	10.9	8.5
SERC	22.0	21.4	20.7	21.0	20.3	20.4	20.0	19.2	18.9	17.9
Florida	14.4	13.8	12.0	8.7	10.4	10.3	9.3	9.4	7.7	5.9
Southern	30.9	29.5	29.3	28.6	27.5	28.3	28.3	28.2	27.8	28.0
TVA	25.5	24.2	22.6	26.9	25.2	26.6	27.6	25.8	26.7	24.9
VACAR	18.9	19.4	19.3	20.3	19.1	18.1	16.9	15.5	15.2	14.2
SPP	44.8	43.2	42.2	40.9	40.0	39.0	38.2	36.8	35.3	34.8
Southeast	42.4	40.8	39.3	37.9	36.4	35.5	35.1	33.6	31.5	30.9
West Central	46.5	44.7	44.6	42.7	42.1	40.9	39.3	37.7	36.0	35.5
Northern	46.5	45.4	43.9	43.4	42.9	42.2	41.8	40.8	40.4	40.0
WSCC	35.3	35.2	34.7	33.8	33.3	32.8	31.9	31.4	30.4	29.4
NW Pool	27.4	26.1	26.0	24.9	25.1	24.6	23.8	23.1	22.3	23.2
Rocky Mt Area	31.9	29.8	28.9	27.9	27.0	29.3	27.9	26.1	24.8	27.0
Ariz-N. Mex	41.0	40.9	38.5	40.4	40.1	38.4	37.3	36.3	34.6	32.7
Calif-So. Nev	38.0	39.7	39.2	38.6	37.8	37.2	35.8	35.3	35.3	34.4
TOTAL(U.S.)	31.6	31.3	30.8	30.2	29.4	28.8	28.0	27.3	26.5	25.8
NERC-Canada										
MAPP	15.6	16.5	22.3	25.3	23.6	22.5	21.1	21.8	20.3	18.8
NPCC	14.6	16.1	16.9	17.1	16.8	16.2	18.0	16.7	16.7	18.3
New Brunswick	20.3	17.8	21.2	20.9	29.0	25.5	23.4	21.4	27.8	26.0
Nova Scotia	20.2	15.2	18.7	16.2	19.4	16.5	19.4	17.1	19.7	22.1
Ontario	19.0	24.2	25.0	25.7	24.0	23.6	23.7	23.6	22.8	23.3
Quebec	9.5	7.6	7.8	7.6	7.5	7.2	11.6	9.1	8.9	12.3
WSCC	18.7	18.8	18.9	17.1	14.4	12.1	9.9	9.3	7.1	6.9
TOTAL(Canada)	15.5	16.7	17.7	17.8	16.9	15.9	16.8	15.8	15.2	16.3
NERC-Mexico										
WSCC	36.3	50.0	46.1	43.3	42.6	45.6	42.0	44.4	40.7	36.8
TOTAL(Mexico)	36.3	50.0	46.1	43.3	42.6	45.6	42.0	44.4	40.7	36.8
NERC-Total	29.8	29.7	29.3	28.7	27.9	27.3	26.7	25.9	25.2	24.6

[a] See footnote a on Table 8.

[b] At the time of winter peak demand.

The installed generating capacity includes those generating units that are existing, presently under construction, in various stages of planning, as well as unit upgradings, deratings, and removals. It includes utility generating units and non-utility generators (NUGs) that utilities have reported as generating capacity.

The data included on NUGs is limited to only those NUGs which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are reported as generating capacity or generating capacity additions by electric utilities in their system plans. NUGs treated by utilities as a reduction to peak demand or as capacity imports are not included in the installed generating capacity data.

1989-1998 Projections

The 1988 actual and 1989-1998 projections for installed generating capacity for the nine Regional Reliability Councils and their subregions are shown in Tables 11 (summer) and 14 (winter). These generating capacities correspond with the time of the projected seasonal peak demands for the Regions and subregions shown in Tables 2 and 3.

Total installed generating capacity will increase from 753,000 to 836,000 MW (summer) and from 773,000 to 856,000 MW (winter) over the 1989-1998 forecast period as shown in Tables 11 and 14. (For tabulations of the total planned capacity resources, which include scheduled capacity purchases and sales in addition to installed generating capacity, refer to Tables 6 and 7.)

Summary by Fuel

The 1989 and 1998 projections of total installed generating capacity with a breakdown by fuel for NERC-U.S., NERC-Canada, and NERC-Mexico are shown in Figure 8. Similarly, Table 10 shows the generating capacity percentage mix by fuel for all NERC Regions for the first and tenth years of the forecast. A further breakdown of the regional and subregional summer generating capacity totals of Table 11, by fuel, is included in Appendix A.

Tables 12 and 13 show the summer generating capacities by fuel in megawatts and in percent of total megawatts, respectively, for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total. Tables 15 and 16 show the winter generating capacities for these areas on the same bases.

Figure 8

Installed Generating Capacity by Fuel

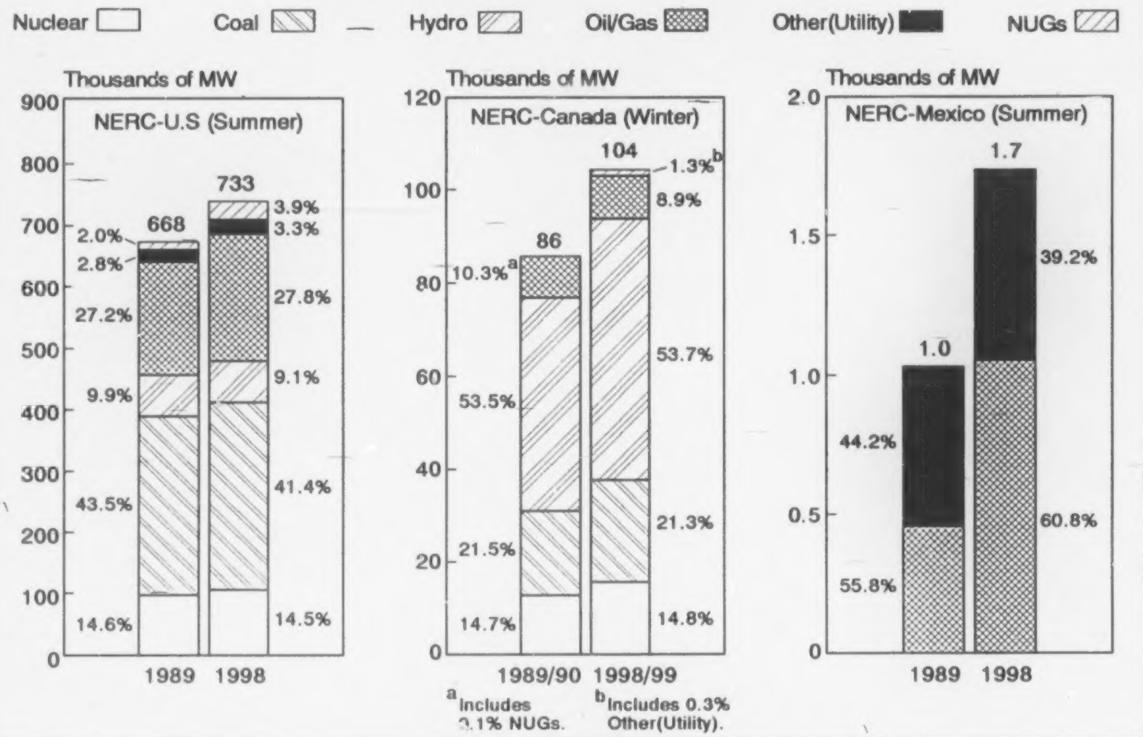

TABLE 10 — Installed Generating Capacity[a] by Fuel (% Total)

	1989						1998					
	Nuclear	Coal	Hydro[b]	Oil/Gas	Other	NUGs	Nuclear	Coal	Hydro[b]	Oil/Gas	Other	NUGs
ECAR	7.9	81.3	0.7	6.2	3.7	0.2	7.3	78.5	0.7	7.8	3.4	2.3
ERCOT	4.8	26.8	0.6	62.1	0.0	5.7	8.2	31.5	0.6	56.6	0.9	2.2
MAAC	23.5	34.9	2.1	35.3	2.9	1.3	21.9	30.6	1.8	35.7	2.9	7.1
MAIN	30.0	55.4	1.2	12.8	0.6	0.0	30.0	53.4	1.2	14.6	0.6	0.2
MAPP-U.S.	12.0	64.5	9.6	12.3	0.3	1.3	11.4	64.8	8.4	13.7	0.3	1.4
NPCC-U.S.	19.5	12.9	9.3	50.0	4.7	3.6	19.6	12.2	9.4	46.1	4.4	8.3
SERC	20.5	49.0	7.9	18.8	3.1	0.7	19.7	43.1	6.8	22.2	5.1	3.1
SPP	8.7	40.0	3.8	46.0	1.3	0.2	8.6	39.5	3.8	46.7	0.7	0.7
WSCC-U.S.	9.5	23.2	33.3	24.5	4.5	5.0	8.8	22.8	31.3	25.0	4.9	7.2
NERC-U.S.	**14.6**	**43.5**	**9.9**	**27.2**	**2.8**	**2.0**	**14.5**	**41.4**	**9.1**	**27.8**	**3.3**	**3.9**
MAPP-Canada	0.0	29.1	65.6	5.3	0.0	0.0	0.0	28.3	65.8	5.9	0.0	0.0
NPCC-Canada	20.6	18.9	50.2	10.1	0.0	0.2	20.4	17.7	52.0	8.3	0.4	1.2
WSCC-Canada	0.0	27.2	60.3	12.5	0.0	0.0	0.0	31.9	55.2	12.3	0.0	0.6
NERC-Canada	**14.7**	**21.5**	**53.5**	**10.2**	**0.0**	**0.1**	**14.8**	**21.3**	**53.7**	**8.9**	**0.3**	**1.0**
NERC-Mexico	**0.0**	**0.0**	**0.0**	**44.2**	**55.8[c]**	**0.0**	**0.0**	**0.0**	**0.0**	**60.8**	**39.2[c]**	**0.0**
NERC-Total	**14.5**	**41.0**	**14.8**	**25.3**	**2.6**	**1.8**	**14.6**	**38.9**	**14.4**	**25.5**	**3.0**	**3.6**

[a] Summer capabilities, except winter capabilities for Canada.

[b] Conventional hydro. Adverse hydro except for a few systems with median or average hydro.

[c] All geothermal capacity.

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Table 11
Actual and Projected Installed Generating Capacity[a] – Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	97121	97356	99411	101419	101846	102453	103089	103601	104753	105719	106086
ERCOT	49227	52121	53394	53258	54606	54914	55368	55558	56150	58129	58759
MAAC	48669	49208	50882	52318	54047	54845	55683	55908	56547	57320	57754
MAIN	49336	49401	49212	49232	49293	49552	49704	49974	49967	49842	49426
Cmnwlth Edison	21972	21972	21972	21972	21972	21972	21972	21972	21872	21685	21135
East Missouri	8190	8190	8190	8190	8190	8190	8190	8238	8238	8238	8238
S Cent Illinois	9582	9586	9586	9586	9622	9696	9696	9696	9639	9639	9639
Wis-Upper Mich	9592	9653	9464	9484	9509	9694	9846	10068	10218	10280	10414
MAPP	30775	30814	30873	30823	30934	31228	31270	31517	31604	31880	32360
NPCC	53913	55123	58292	59551	60057	60180	60068	60248	60648	60629	60634
New York	32087	32205	33678	34535	35176	35602	35602	35782	36182	36182	36227
NEPOOL	21826	22918	24614	25016	24881	24578	24466	24466	24466	24447	24407
SERC	138916	142206	143808	146437	149682	152725	155424	157432	160979	162558	165853
Florida	29990	30013	30342	30634	31018	32896	33694	34269	35220	35478	35660
Southern	34479	37225	37164	38091	38091	38171	39446	40454	41522	42485	43778
TVA	29596	29596	29596	29596	30766	30766	30766	30766	31936	31936	33148
VACAR	44851	45372	46706	48116	49807	50892	51518	51943	52301	52659	53267
SPP	66221	66327	66708	67276	67123	67271	67299	67817	68149	68382	68584
Southeast	27566	27390	27756	27916	27743	27765	27793	28066	28023	27968	27656
West Central	23311	23413	23433	23859	23859	23894	23894	23968	23968	24068	24308
Northern	15344	15524	15519	15501	15521	15612	15612	15783	16158	16346	16620
WSCC[b]	127402	125154	127470	128708	129285	129898	130842	131468	131426	132716	133406
NW Pool	48951	45303	45422	45512	45583	45732	44922	44970	45025	45160	45167
Rocky Mt Area	9381	9702	9742	9862	9967	10094	10638	10700	10700	10754	11239
Ariz-N. Mex	15103	15658	16138	16250	16358	16419	16419	16433	16588	16673	16673
Calif-So. Nev	53662	54756	56484	56692	57198	57446	57728	58165	59260	60216	60548
TOTAL(U.S.)	661580	667710	680050	689022	696873	703066	708747	713523	720223	727175	732862
NERC-Canada											
MAPP	6550	6701	6701	7467	8046	8212	8304	8350	8626	8626	8626
NPCC	58598	59140	61371	62502	65518	66135	67217	67789	70820	71318	72562
New Brunswick	3194	3244	3244	3244	3244	3244	3694	3864	3864	3864	4314
Nova Scotia	1989	1989	1989	1989	2139	2139	2289	2289	2439	2439	2589
Ontario	29564	29830	31681	32701	33874	33981	34041	34339	34484	34633	34653
Quebec	23851	24077	24457	24568	26261	26771	27193	27297	30033	30382	31006
WSCC	17948	17959	18415	18689	19200	19200	19195	19195	19267	19614	19781
TOTAL(Canada)	83096	83800	86487	88658	92764	93547	94716	95334	98713	99558	100969
NERC-Mexico											
WSCC	1030	1030	1180	1330	1382	1434	1584	1584	1734	1734	1734
TOTAL(Mexico)	1030	1030	1180	1330	1382	1434	1584	1584	1734	1734	1734
NERC-Total	745706	752540	767717	779010	791019	798047	805047	810441	820670	828467	835565

[a] At the time of actual and projected summer peak demand.

[b] Because of subregional peak demand diversities, the sum of the individual subregional capacities at the time of the respective subregional peak demands may not equal the total WSCC-U.S. capacity.

Table 12
Actual and Projected Installed Generating Capacity by Fuel – Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
Coal	288455	290455	292548	295495	297057	297485	298207	299377	299768	302429	303454
Nuclear	92913	97201	101213	101238	103606	103699	103699	103699	104869	104869	106081
Hydro[a]	70854[b]	66434	66671	66977	67104	67463	67554	67615	66846	66950	66832
Pumped Storage	16044	16012	16107	16621	17163	17694	17753	17771	18628	18626	18666
Geothermal	1848	1848	1854	1854	1854	1854	1854	1907	1907	1907	1907
Oil[c]	60074	60213	60953	61252	61597	61819	62710	62702	63324	64017	64145
Gas[c]	51850	52145	52530	53069	53091	54625	55470	56846	58787	59733	60842
Dual(Oil/Gas)Fuel[c,d]	68736	68949	69561	69663	69828	70053	71747	73816	75387	77078	78393
Other(Utility)	1048	1087	1141	1154	1154	1376	1641	1616	2215	2700	3703
NUGs[e]	9758	13366	17472	21699	24419	26998	28112	28174	28492	28866	28839
TOTAL(U.S.)	661580	667710	680050	689022	696873	703066	708747	713523	720223	727175	732862
NERC-Canada											
Coal	17737	18010	18396	18762	19517	19529	20129	20299	20725	21085	21685
Nuclear	11667	11702	13487	14401	15474	15474	15474	15474	15474	15474	15474
Hydro[a]	45235	45388	45714	46476	48509	48963	49075	49377	52213	52666	53370
Pumped Storage	0	0	0	0	0	0	0	0	0	0	0
Geothermal	0	0	0	0	0	0	0	0	0	0	0
Oil[c]	5111	5142	5142	5142	4807	4807	4802	4802	4802	4802	4802
Gas[c]	3316	3522	3507	3461	3461	3631	4003	4049	4121	4108	4195
Dual(Oil/Gas)Fuel[c,d]	0	0	116	116	116	116	116	116	116	116	116
Other(Utility)	0	0	0	0	335	335	335	335	335	335	335
NUGs[e]	30	36	125	300	545	692	782	882	927	972	992
TOTAL(Canada)	83096	83800	86487	88658	92764	93547	94716	95334	98713	99558	100969
NERC-Mexico											
Coal	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0
Hydro[a]	0	0	0	0	0	0	0	0	0	0	0
Pumped Storage	0	0	0	0	0	0	0	0	0	0	0
Geothermal	575	575	575	575	627	679	679	679	679	679	679
Oil[c]	455	455	605	755	755	755	905	905	1055	1055	1055
Gas[c]	0	0	0	0	0	0	0	0	0	0	0
Dual(Oil/Gas)Fuel[c,d]	0	0	0	0	0	0	0	0	0	0	0
Other(Utility)	0	0	0	0	0	0	0	0	0	0	0
NUGs[e]	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	1030	1030	1180	1330	1382	1434	1584	1584	1734	1734	1734
NERC-Total											
Coal	306192	308465	310944	314257	316574	317014	318336	319676	320493	323514	325139
Nuclear	104580	108903	114700	115639	119080	119173	119173	119173	120343	120343	121555
Hydro[a]	116089[b]	111822	112385	113453	115613	116426	116629	116992	119059	119616	120202
Pumped Storage	16044	16012	16107	16621	17163	17694	17753	17771	18628	18626	18666
Geothermal	2423	2423	2429	2429	2481	2533	2533	2586	2586	2586	2586
Oil[c]	65640	65810	66700	67149	67159	67381	68417	68409	69181	69874	70002
Gas[c]	55166	55667	56037	56530	56552	58256	59473	60895	62908	63841	65037
Dual(Oil/Gas)Fuel[c,d]	68736	68949	69677	69779	69944	70169	71863	73932	75503	77194	78509
Other(Utility)	1048	1087	1141	1154	1489	1711	1976	1951	2550	3035	4038
NUGs[e]	9788	13402	17597	21999	24964	27690	28894	29056	29419	29838	29831
NERC-Total	745706	752540	767717	779010	791019	798047	805047	810441	820670	828467	835565

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.

[b] Capacity for actual year can be greater than capacity for forecast years if median or average hydro conditions occurred.

[c] Includes steam, combustion turbine (and diesel), and combined cycle units.

[d] Capable of burning oil or gas equally.

[e] Non-utility generators (NUGs) include only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak.

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Table 13
Actual and Projected Installed Generating Capacity by Fuel – Summer – % Total
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
Coal	43.6	43.5	43.0	42.9	42.6	42.3	42.1	42.0	41.6	41.6	41.4
Nuclear	14.0	14.6	14.9	14.7	14.9	14.8	14.6	14.5	14.6	14.4	14.5
Hydro	10.7	10.0	9.8	9.7	9.6	9.6	9.5	9.5	9.3	9.2	9.1
Pumped Storage	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.6
Geothermal	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Oil	9.1	9.0	9.0	8.9	8.8	8.8	8.9	8.8	8.8	8.8	8.8
Gas	7.8	7.8	7.7	7.7	7.6	7.8	7.8	8.0	8.2	8.2	8.3
Dual(Oil/Gas)Fuel	10.4	10.3	10.2	10.1	10.0	10.0	10.1	10.4	10.5	10.6	10.7
Other(Utility)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5
NUGs[b]	1.5	2.0	2.6	3.2	3.5	3.8	4.0	4.0	4.0	4.0	3.9
TOTAL(U.S.)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Canada											
Coal	21.4	21.5	21.3	21.2	21.0	20.9	21.3	21.3	21.0	21.2	21.5
Nuclear	14.0	14.0	15.6	16.2	16.7	16.5	16.3	16.2	15.7	15.5	15.3
Hydro	54.4	54.2	52.9	52.4	52.3	52.3	51.8	51.8	52.9	52.9	52.9
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	6.2	6.1	6.0	5.8	5.2	5.1	5.1	5.0	4.9	4.8	4.8
Gas	4.0	4.2	4.1	3.9	3.7	3.9	4.2	4.3	4.2	4.1	4.2
Dual(Oil/Gas)Fuel	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other(Utility)	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.3	0.3	0.3
NUGs[b]	0.0	0.0	0.1	0.3	0.6	0.7	0.8	0.9	0.9	1.0	1.0
TOTAL(Canada)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Mexico											
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geothermal	55.8	55.8	48.7	43.2	45.4	47.4	42.9	42.9	39.2	39.2	39.2
Oil	44.2	44.2	51.3	56.8	54.6	52.7	57.1	57.1	60.8	60.8	60.8
Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dual(Oil/Gas)Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other(Utility)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NUGs[b]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL(Mexico)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Total											
Coal	41.1	41.0	40.5	40.3	40.0	39.7	39.5	39.4	39.1	39.1	38.9
Nuclear	14.0	14.5	14.9	14.8	15.1	14.9	14.8	14.7	14.7	14.5	14.6
Hydro	15.6	14.9	14.6	14.6	14.6	14.6	14.5	14.4	14.5	14.4	14.4
Pumped Storage	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2
Geothermal	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Oil	8.8	8.8	8.7	8.6	8.5	8.4	8.5	8.4	8.4	8.4	8.4
Gas	7.4	7.4	7.3	7.3	7.2	7.3	7.4	7.5	7.7	7.7	7.8
Dual(Oil/Gas)Fuel	9.2	9.2	9.1	9.0	8.8	8.8	8.9	9.1	9.2	9.3	9.4
Other(Utility)	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.5
NUGs[b]	1.3	1.8	2.3	2.8	3.2	3.5	3.6	3.6	3.6	3.6	3.6
NERC-Total[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] Totals may not add due to rounding.

[b] See Table 12, footnote e.

Table 14
Actual and Projected Installed Generating Capacity[a] – Winter – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
NERC-U.S.											
ECAR	98688	100086	100866	103004	103489	104101	104930	105497	106572	107297	107843
ERCOT	50654	53107	53673	54687	55093	54760	55385	56035	57059	58451	59502
MAAC	51300	51827	54054	55105	56624	57626	58318	58603	59389	60344	60925
MAIN	50305	50174	50168	50194	50289	50524	50676	50807	50770	50320	50404
Cmnwlth Edison	22521	22521	22521	22521	22521	22521	22521	22421	22234	21662	21662
East Missouri	8300	8300	8300	8300	8300	8300	8300	8348	8348	8348	8348
S Cent Illinois	9707	9707	9707	9707	9747	9827	9827	9770	9770	9770	9770
Wis-Upper Mich	9777	9646	9640	9666	9721	9876	10028	10268	10418	10540	10624
MAPP	31804	31748	31838	31909	32285	32381	32454	32745	32905	33055	33728
NPCC	55914	58626	60527	61250	61768	61854	61854	62034	62434	62361	62354
New York	33147	33476	34733	35595	36236	36662	36662	36842	37242	37242	37287
NEPOOL	22767	25150	25794	25655	25532	25192	25192	25192	25192	25119	25067
SERC	143140	144102	146024	148711	152385	154894	157868	161015	163340	166065	168206
Florida	31073	31375	31664	31999	32147	33944	35115	35795	36678	36906	37116
Southern	37202	37170	37245	38097	38097	38177	39452	40443	41527	42454	43777
TVA	29848	29848	29848	29848	31018	31018	31018	32188	32188	33400	33400
VACAR	45017	45709	47267	48767	51123	51755	52283	52589	52947	53305	53913
SPP	66515	67010	66936	67454	67448	67586	67889	68144	68411	68387	68901
Southeast	27566	27756	27667	27777	27751	27763	28066	28076	27968	27656	27656
West Central	23364	23489	23509	23935	23935	23970	23970	24044	24044	24144	24384
Northern	15585	15765	15760	15742	15762	15853	15853	16024	16399	16587	16861
WSCC[b]	128620	129071	130905	131667	132118	133086	134295	135180	136869	137574	137520
NW Pool	48729	47889	48006	48009	48077	48670	48790	48861	49080	49214	48965
Rocky Mt Area	9908	9953	9876	9985	10088	10210	10746	10816	10816	10891	11380
Ariz-N. Mex	15012	15487	16117	15811	16394	16429	16431	16465	16611	16671	16671
Calif-So. Nev	52249	54231	56330	56679	57222	57357	57661	58145	59243	60175	60504
TOTAL(U.S.)	676940	685751	694991	703981	711499	716812	723669	730060	737749	743854	749383
NERC-Canada											
MAPP	6551	6678	6918	7568	8147	8197	8289	8339	8619	8619	8619
NPCC	58967	61071	62164	64273	66682	67781	68161	71202	71751	73020	75759
New Brunswick	3194	3244	3244	3244	3244	3694	3864	3864	3864	4314	4314
Nova Scotia	1989	1989	1989	2139	2139	2289	2289	2439	2439	2589	2739
Ontario	30259	31190	32214	33383	34371	34431	34547	34823	35023	35043	35613
Quebec	23525	24648	24717	25507	26928	27367	27461	30076	30425	31074	33093
WSCC	17711	18053	18463	18974	18974	18969	18969	19051	19391	19491	20011
TOTAL(Canada)	83229	85802	87545	90815	93803	94947	95419	98592	99761	101130	104389
NERC-Mexico											
WSCC	1038	1038	1338	1338	1391	1444	1594	1594	1744	1744	1744
TOTAL(Mexico)	1038	1038	1338	1338	1391	1444	1594	1594	1744	1744	1744
NERC-Total	761207	772591	783874	796134	806693	813203	820682	830246	839254	846728	855516

[a] At the time of actual and projected winter peak demand.

[b] See Table 11, footnote b.

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Table 15
Actual and Projected Installed Generating Capacity by Fuel – Winter – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
NERC-U.S.											
Coal	291941	293275	294298	297240	299112	299372	300204	301410	302255	303782	306488
Nuclear	96297	100552	102264	103439	104736	104750	104750	105920	105920	107132	107132
Hydro[a]	68878[b]	67918	68551	68758	69052	69624	69779	69818	70356	70428	69951
Pumped Storage	16363	16453	16678	16863	17928	17928	17992	17992	18950	18990	18927
Geotherm OIL	1864	1870	1870	1870	1870	1870	1923	1923	1923	1923	1923
Oil[c]	65740	66232	66467	66685	67019	67296	68410	68428	69050	69428	69775
Gas[c]	53449	54291	54472	54734	54909	56247	57770	59041	61198	62455	63104
Dual(Oil/Gas)Fuel[c,d]	70268	69854	70352	70576	70633	71122	73216	75171	76930	77688	79363
Other(Utility)	1054	1071	1147	1158	1160	1180	1470	1820	2378	2980	3708
NUGs[e]	11086	14235	18892	22658	25080	27423	28155	28537	28789	29048	29012
TOTAL(U.S.)	676940	685751	694991	703981	711499	716812	723669	730060	737749	743854	749383
NERC-Canada											
Coal	17995	18406	18772	19308	19539	20139	20309	20459	21099	21699	22209
Nuclear	11702	12616	13520	14603	15484	15484	15484	15484	15484	15484	15484
Hydro[a]	44845	45920	46206	47527	49169	49189	49401	52222	52726	53350	56079
Pumped Storage	0	0	0	0	0	0	0	0	0	0	0
Geothermal	0	0	0	0	0	0	0	0	0	0	0
Oil[c]	5166	5193	5193	4858	4858	4853	4853	4853	4853	4853	4853
Gas[c]	3490	3565	3473	3523	3647	4069	4069	4201	4181	4281	4281
Dual(Oil/Gas)Fuel[c,d]	0	0	136	136	136	136	136	136	136	136	136
Other(Utility)	0	0	0	335	335	335	335	335	335	335	335
NUGs[e]	31	102	245	525	635	742	832	902	947	992	1012
TOTAL(Canada)	83229	85802	87545	90815	93803	94947	95419	98592	99761	101130	104389
NERC-Mexico											
Coal	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0
Hydro[a]	0	0	0	0	0	0	0	0	0	0	0
Pumped Storage	0	0	0	0	0	0	0	0	0	0	0
Geothermal	583	583	583	583	636	689	689	689	689	689	689
Oil[c]	455	455	755	755	755	755	905	905	1055	1055	1055
Gas[c]	0	0	0	0	0	0	0	0	0	0	0
Dual(Oil/Gas)Fuel[c,d]	0	0	0	0	0	0	0	0	0	0	0
Other(Utility)	0	0	0	0	0	0	0	0	0	0	0
NUGs[e]	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	1038	1038	1338	1338	1391	1444	1594	1594	1744	1744	1744
NERC-Total											
Coal	309936	311681	313070	316548	318651	319511	320513	321869	323354	325481	328697
Nuclear	107999	113168	115784	118042	120220	120234	120234	121404	121404	122616	122616
Hydro[a]	113723	113838	114757	116285	118221	118813	119180	122040	123082	123778	126030
Pumped Storage	16363	16453	16678	16863	17928	17928	17992	17992	18950	18990	18927
Geothermal	2447	2453	2453	2453	2506	2559	2612	2612	2612	2612	2612
Oil[c]	71361	71880	72415	72298	72632	72904	74168	74186	74958	75336	75683
Gas[c]	56939	57856	57945	58257	58556	60316	61839	63242	65379	66736	67385
Dual(Oil/Gas)Fuel[c,d]	70268	69854	70488	70712	70769	71258	73352	75307	77066	77824	79499
Other(Utility)	1054	1071	1147	1493	1495	1515	1805	2155	2713	3315	4043
NUGs[e]	11117	14337	19137	23183	25715	28165	28987	29439	29736	30040	30024
NERC-Total	761207	772591	783874	796134	806693	813203	820682	830246	839254	846728	855516

[a] See Table 12, footnote a.
[b] See Table 12, footnote b.
[c] See Table 12, footnote c.
[d] See Table 12, footnote d.
[e] See Table 12, footnote e.

Table 16
Actual and Projected Installed Generating Capacity by Fuel – Winter – % Total
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
NERC-U.S.											
Coal	43.1	42.8	42.4	42.2	42.0	41.8	41.5	41.3	41.0	40.8	40.9
Nuclear	14.2	14.7	14.7	14.7	14.7	14.6	14.5	14.5	14.4	14.4	14.3
Hydro	10.2	9.9	9.9	9.8	9.7	9.7	9.6	9.6	9.5	9.5	9.3
Pumped Storage	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.5
Geothermal	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Oil	9.7	9.7	9.6	9.5	9.4	9.4	9.5	9.4	9.4	9.3	9.3
Gas	7.9	7.9	7.8	7.8	7.7	7.9	8.0	8.1	8.3	8.4	8.4
Dual(Oil/Gas)Fuel	10.4	10.2	10.1	10.0	9.9	9.9	10.1	10.3	10.4	10.4	10.6
Other(Utility)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5
NUGs[a]	1.6	2.1	2.7	3.2	3.5	3.8	3.9	3.9	3.9	3.9	3.9
TOTAL(U.S.)[b]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Canada											
Coal	21.6	21.5	21.4	21.3	20.8	21.2	21.3	20.8	21.2	21.5	21.3
Nuclear	14.1	14.7	15.4	16.1	16.5	16.3	16.2	15.7	15.5	15.3	14.8
Hydro	53.9	53.5	52.8	52.3	52.4	51.8	51.8	53.0	52.9	52.8	53.7
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	6.2	6.1	5.9	5.4	5.2	5.1	5.1	4.9	4.9	4.8	4.7
Gas	4.2	4.2	4.0	3.9	3.9	4.3	4.3	4.3	4.2	4.2	4.1
Dual(Oil/Gas)Fuel	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other(Utility)	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
NUGs[a]	0.0	0.1	0.3	0.6	0.7	0.8	0.9	0.9	1.0	1.0	1.0
TOTAL(Canada)[b]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Mexico											
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geothermal	56.2	56.2	43.6	43.6	45.7	47.7	43.2	43.2	39.5	39.5	39.5
Oil	43.8	43.8	56.4	56.4	54.3	52.3	56.8	56.8	60.5	60.5	60.5
Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dual(Oil/Gas)Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other(Utility)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NUGs[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL(Mexico)[b]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Total											
Coal	40.7	40.3	39.9	39.8	39.5	39.3	39.1	38.8	38.5	38.4	38.4
Nuclear	14.2	14.7	14.8	14.8	14.9	14.8	14.7	14.6	14.5	14.5	14.3
Hydro	14.9	14.7	14.6	14.6	14.7	14.6	14.5	14.7	14.7	14.6	14.7
Pumped Storage	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.2
Geothermal	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Oil	9.4	9.3	9.2	9.1	9.0	9.0	9.0	8.9	8.9	8.9	8.9
Gas	7.5	7.5	7.4	7.3	7.3	7.4	7.5	7.6	7.8	7.9	7.9
Dual(Oil/Gas)Fuel	9.2	9.0	9.0	8.9	8.8	8.8	8.9	9.1	9.2	9.2	9.3
Other(Utility)	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5
NUGs[a]	1.5	1.9	2.4	2.9	3.2	3.5	3.5	3.6	3.5	3.6	3.5
NERC-Total[b]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] See Table 12, footnote e.
[b] Totals may not add due to rounding.

A Region's annual net energy for load (NEL) may be supplied by a combination of internal generation plus imports (or purchases) from others (utilities and non-utility generators). Figure 9 shows that the electrical energy produced (generated) from primary energy sources in Region A may be used to supply internal load directly or it may also supply energy for pumping of hydro pumped storage units (or for charging of other energy storage type generating units). The hydro pumped storage units, in turn, can then generate electrical energy as scheduled. Electrical energy production less pumped storage load (input) plus pumped storage generation (output) equals Region A's internal generation for load. If Region A's internal generation is not adequate, then Region A will generally import (or purchase) additional energy from others (utilities and non-utility generators). Region A may also export (or sell) energy to others.

1989-1998 Projections

Based on the 1989-1998 projections, electric utilities will require 20% more NEL in 1998 than in 1989. The 1988 actual and 1989-1998 projected electrical energy production, internal generation, imports less exports, and NEL for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total are shown in Table 18.

During 1988, utility generators provided about 98% of NERC's total electrical energy production and non-utility generators (NUGs) the remaining 2%. By 1998, utility generators will provide a decreasing percentage, about 95%, of NERC's total electrical energy production and NUGs an increasing percentage, or about 5%.

Summary by Fuel

The projected growth in electrical energy production by fuel for NERC-U.S., NERC-Canada, and NERC-Mexico for 1989 and 1998 is illustrated in Figure 10. The year-by-year percentages for these three areas and for NERC-Total are shown in Table 19. Table 17 summarizes similar electrical energy production by percentage fuel mix for the NERC Regions for 1989 and 1998. The regional electrical energy production figures to which the Table 17 percentages apply are shown in Table 20. Further details on regional and subregional electrical energy production by fuel are included in Appendix B.

The total internal generation for load and the net imports of Table 18 are shown on a regional basis in Tables 21 and 22, respectively. The annual NEL totals of Table 18 were previously defined on a regional basis in Table 5.

Figure 9

Regional Electrical Energy Production, Generation, and Net Energy for Load

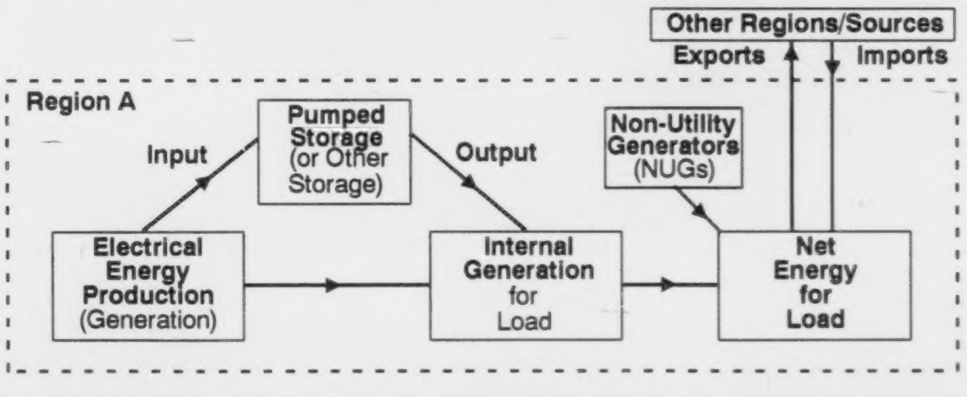
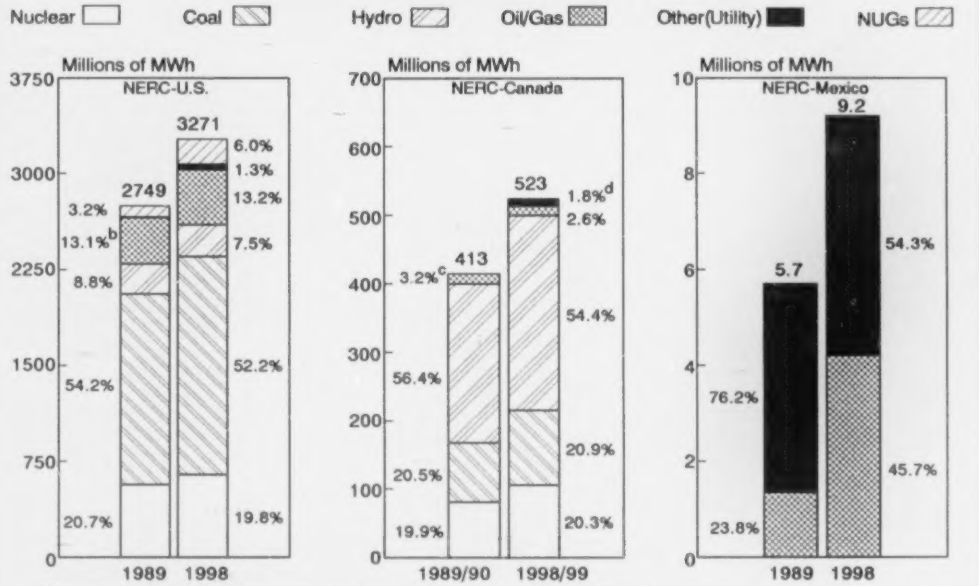

Other Regions/Sources
Exports
Imports
Region A
Input
Pumped Storage (or Other Storage)
Output
Non-Utility Generators (NUGs)
Electrical Energy Production (Generation)
Internal Generation for Load
Net Energy for Load

Figure 10

Electrical Energy Production[a] by Fuel



[a] From primary energy sources (pumped storage generation and net imports excluded).

[b] Includes 0.7% Other(Utility).

[c] Includes 0.1% NUGs and 0.2% Other(Utility).

[d] Includes 0.9% NUGs.

TABLE 17 — Electrical Energy Production by Fuel (% Total)

	1989						1998					
	Nuclear	Coal	Hydro[a]	Oil/Gas	Other (Utility)	NUGs	Nuclear	Coal	Hydro[a]	Oil/Gas	Other (Utility)	NUGs
ECAR	9.4	89.0	0.7	0.5	0.0	0.4	9.0	86.8	0.6	0.7	0.0	2.9
ERCOT	6.4	43.4	0.3	39.5	0.0	10.4	12.3	46.1	0.3	32.5	0.1	8.7
MAAC	32.5	50.1	1.7	11.8	0.6	3.3	30.3	42.8	1.4	13.0	0.4	12.1
MAIN	44.6	53.7	1.1	0.3	0.3	<0.1	40.1	56.4	1.0	2.0	0.3	0.2
MAPP-U.S.	20.0	70.1	8.6	0.8	0.3	0.2	18.7	69.3	9.2	2.2	0.3	0.3
NPCC-U.S.	26.9	20.0	12.7	37.5	0.2	2.7	27.5	18.3	11.0	30.6	0.9	11.7
SERC	28.4	58.3	5.3	6.5	0.0	1.5	26.4	55.5	4.3	10.3	0.1	3.4
SPP	16.0	55.2	2.4	25.2	0.1	1.1	14.0	55.4	2.1	26.7	0.2	1.6
WSCC-U.S.	13.5	35.2	30.6	9.2	3.1	8.4	11.4	32.8	26.5	11.8	6.2	11.3
NERC-U.S.	**20.7**	**54.2**	**8.8**	**12.4**	**0.7**	**3.2**	**19.8**	**52.2**	**7.5**	**13.2**	**1.3**	**6.0**
MAPP-Canada	0.0	28.0	70.0	2.0	0.0	0.0	0.0	28.6	70.8	0.6	0.0	0.0
NPCC-Canada	28.2	14.4	54.6	2.7	0.0	0.1	29.0	14.2	54.1	1.6	0.0	1.1
WSCC-Canada	0.0	38.4	56.7	3.9	0.0	1.0	0.0	40.0	48.4	6.8	4.3	0.5
NERC-Canada	**19.9**	**20.5**	**56.4**	**2.9**	**0.2**	**0.1**	**20.3**	**20.9**	**54.4**	**2.6**	**0.9**	**0.9**
NERC-Mexico	**0.0**	**0.0**	**0.0**	**23.8**	**76.2**[b]	**0.0**	**0.0**	**0.0**	**0.0**	**45.7**	**54.3**[b]	**0.0**
NERC-Total	**20.6**	**49.7**	**15.0**	**11.2**	**0.7**	**2.8**	**19.8**	**47.8**	**14.0**	**11.8**	**1.4**	**5.2**

[a] Conventional hydro. Adverse hydro except for a few systems with median or average hydro.

[b] All geothermal electrical energy production.

Table 18
Actual and Projected Electrical Energy Production, Internal Generation, and Net Energy for Load by Fuel – Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
Coal	1535853	1489208	1513870	1527446	1550992	1569591	1593928	1616870	1652368	1682687	1708498
Nuclear	521677	569440	592888	616144	626158	628945	633987	636408	637876	644343	646318
Hydro[a]	223355	240868	246355	246483	246735	245907	245975	246437	246957	246746	246472
Oil	133440	112949	103742	88809	89457	93226	102421	113052	118493	131094	148462
Gas	245877	228608	220994	213245	223527	235020	243225	254932	265342	273580	283963
Geothermal	11992	12997	12597	12820	13055	14019	13941	14200	15017	15065	15017
Other(Utility)[b]	5786	5530	6236	8203	10104	13333	16921	18442	21468	22969	27548
NUGs	66062	89552	119411	146632	162680	174686	181819	184151	189016	192331	195167
Electrical Production[c]	2744042	2749152	2816093	2859782	2922708	2974727	3032217	3084492	3146537	3208815	3271445
Pump.Stor.Load(-)	23217	17901	18012	18933	19402	20423	21389	22104	23433	24576	25174
Pump.Stor.Gen.(+)[d]	17646	13618	13849	14559	14859	15608	16216	16838	17981	18892	19450
Internal Generation[e]	2738471	2744869	2811930	2855408	2918165	2969912	3027044	3079226	3141085	3203131	3265721
Imports-Exports	30387	57603	53538	65001	63538	70350	72592	78537	81431	83256	83529
Net Energy For Load[f]	2768858	2802472	2865468	2920409	2981703	3040262	3099636	3157763	3222516	3286387	3349250
NERC-CANADA											
Coal	85728	84779	84311	84427	80560	84677	88884	87933	95935	100361	109209
Nuclear	78194	82464	84911	93982	104612	106275	109801	115089	109334	109418	106502
Hydro[a]	224055	233036	236158	244125	251925	259578	261611	268005	274192	279663	284567
Oil	7631	7963	8711	8387	8122	8572	6680	7293	7240	7120	5944
Gas	2885	3982	2595	2664	3058	3603	6251	5283	6767	7378	7713
Geothermal	0	0	0	0	0	0	0	0	0	0	0
Other(Utility)[b]	711	902	1198	1126	876	1554	1197	2884	3499	3801	4766
NUGs	223	356	1746	1719	2207	3136	3593	4025	4309	4593	4713
Electrical Production[c]	399427	413482	419630	436430	451360	467395	478017	490512	501276	512334	523414
Pump.Stor.Load(-)	0	0	0	0	0	0	0	0	0	0	0
Pump.Stor.Gen.(+)	0	0	0	0	0	0	0	0	0	0	0
Internal Generation[e]	399427	413482	419630	436430	451360	467395	478017	490512	501276	512334	523414
Imports-Exports	4168	4529	10873	5867	3344	1334	1223	-1983	-4475	-5007	-6170
Net Energy For Load[f]	403595	418011	430503	442297	454704	468729	479240	488529	496801	507327	517244
NERC-MEXICO											
Coal	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0
Hydro[a]	0	0	0	0	0	0	0	0	0	0	0
Oil	1144	1356	1966	1999	2033	1984	2366	2777	3224	3694	4205
Gas	0	0	0	0	0	0	0	0	0	0	0
Geothermal	4249	4351	4027	4300	4600	5000	5000	5000	5000	5000	5000
Other(Utility)[b]	0	0	0	0	0	0	0	0	0	0	0
NUGs	0	0	0	0	0	0	0	0	0	0	0
Electrical Production[c]	5393	5707	5993	6299	6633	6984	7366	7777	8224	8694	9205
Pump.Stor.Load(-)	0	0	0	0	0	0	0	0	0	0	0
Pump.Stor.Gen.(+)	0	0	0	0	0	0	0	0	0	0	0
Internal Generation[e]	5393	5707	5993	6299	6633	6984	7366	7777	8224	8694	9205
Imports-Exports	-1921	-1928	-1928	-1927	-1932	-1927	-1927	-1927	-1932	-1927	-1927
Net Energy For Load[f]	3472	3779	4065	4372	4701	5057	5439	5850	6292	6767	7278
NERC-TOTAL											
Coal	1621581	1573987	1598181	1611873	1631552	1654268	1682812	1704803	1748303	1783048	1817707
Nuclear	599871	651904	677799	710126	730770	735220	743788	751497	747210	753761	752820
Hydro[a]	447410	473904	482513	490608	498660	505485	507586	514442	521149	526409	531039
Oil	142215	122268	114419	99195	99612	103782	111467	123122	128957	141908	158611
Gas	248762	232590	223589	215909	226585	238623	249476	260215	272103	280958	291676
Geothermal	16241	17348	16624	17120	17655	19019	18941	19200	20017	20065	20017
Other(Utility)[b]	6497	6432	7434	9329	10980	14887	18118	21326	24967	26770	32314
NUGs	66285	89908	121157	148351	164887	177822	185412	188176	193325	196924	199880
Electrical Production[c]	3148862	3168341	3241716	3302511	3380701	3449106	3517600	3582781	3656037	3729843	3804064
Pump.Stor.Load(-)	23217	17901	18012	18933	19402	20423	21389	22104	23433	24576	25174
Pump.Stor.Gen.(+)[d]	17646	13618	13849	14559	14859	15608	16216	16838	17981	18892	19450
Internal Generation[e]	3143291	3164058	3237553	3298137	3376158	3444291	3512427	3577515	3650585	3724159	3798340
Imports-Exports	32634	60204	62483	68941	64950	69757	71888	74627	75024	76322	75432
Net Energy For Load[f]	3175925	3224262	3300036	3367078	3441108	3514048	3584315	3652142	3725609	3800481	3873772

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.

[b] Includes the excess of pumped storage generation over pumped storage load in WSCO-U.S.

[c] Total electrical energy production from primary energy sources. Includes pumped storage load and NUGs, but excludes pumped storage generation and net imports.

[d] Excludes the excess of pumped storage generation over pumped storage load in WSCC-U.S.

[e] Electrical energy generated internally to serve customers' loads. Includes pumped storage generation, but excludes pumped storage load. In this case, NUGs are also included.

[f] Total electrical energy required to serve customers' loads. Includes utility internal generation, NUGs, and imports less exports. Same as the net energy for load in Table 5.

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Table 19
Actual and Projected Electrical Energy Production[a] by Fuel – % Total
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
Coal	56.0	54.2	53.8	53.4	53.1	52.8	52.6	52.4	52.5	52.5	52.2
Nuclear	19.0	20.7	21.1	21.6	21.4	21.2	20.9	20.6	20.3	20.1	19.8
Hydro [b]	8.1	8.8	8.8	8.6	8.4	8.3	8.1	8.0	7.9	7.7	7.5
Oil	4.9	4.1	3.7	3.1	3.1	3.1	3.4	3.7	3.8	4.1	4.5
Gas	9.0	8.3	7.9	7.5	7.7	7.9	8.0	8.3	8.4	8.5	8.7
Geothermal	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Other(Utility)	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.6	0.7	0.8
NUGs	2.4	3.3	4.2	5.1	5.6	5.9	6.0	6.0	6.0	6.0	6.0
Electrical Production [c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Canada											
Coal	21.5	20.5	20.1	19.3	17.8	18.1	18.6	17.9	19.1	19.6	20.9
Nuclear	19.6	19.9	20.2	21.5	23.2	22.7	23.0	23.5	21.8	21.4	20.3
Hydro [b]	56.1	56.4	56.3	55.9	55.8	55.5	54.7	54.6	54.7	54.6	54.4
Oil	1.9	1.9	2.1	1.9	1.8	1.8	1.4	1.5	1.4	1.4	1.1
Gas	0.7	1.0	0.6	0.6	0.7	0.8	1.3	1.1	1.3	1.4	1.5
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other(Utility)	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.6	0.7	0.7	0.9
NUGs	0.1	0.1	0.4	0.4	0.5	0.7	0.8	0.8	0.9	0.9	0.9
Electrical Production [c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Mexico											
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydro [b]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	21.2	23.8	32.8	31.7	30.6	28.4	32.1	35.7	39.2	42.5	45.7
Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geothermal	78.8	76.2	67.2	68.3	69.4	71.6	67.9	64.3	60.8	57.5	54.3
Other(Utility)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NUGs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electrical Production [c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-Total											
Coal	51.5	49.7	49.3	48.8	48.3	48.0	47.9	47.6	47.8	47.8	47.8
Nuclear	19.1	20.6	20.9	21.5	21.6	21.3	21.2	21.0	20.4	20.2	19.8
Hydro [b]	14.2	15.0	14.9	14.9	14.8	14.7	14.4	14.4	14.3	14.1	14.0
Oil	4.5	3.9	3.5	3.0	2.9	3.0	3.2	3.4	3.5	3.8	4.2
Gas	7.9	7.3	6.9	6.5	6.7	6.9	7.1	7.3	7.4	7.5	7.7
Geothermal	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5
Other(Utility)	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.7	0.8
NUGs	2.1	2.8	3.7	4.5	4.9	5.2	5.3	5.3	5.3	5.3	5.3
Electrical Production [c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] See Table 18, footnote c.
[b] See Table 18, footnote a.
[c] Totals may not add due to rounding.

Table 20
Actual and Projected Electrical Energy Production[a] – Millions kWh
(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	462863	452182	462952	468146	473991	481221	485666	493490	500543	508788	512370
ERCOT	199406	201987	206686	210925	215519	221674	225935	227764	233655	241291	247580
MAAC	196730	196816	203198	207150	213409	219030	225296	230224	235636	240953	246111
MAIN	195280	190034	192341	195808	200011	202891	207202	209401	212686	214821	217259
Cmnwlth Ediso	78886	76320	77320	78630	81285	82430	83745	85290	86635	87760	89165
East Missouri	33587	32579	33292	33918	34478	34876	35547	35649	36232	37150	37139
S Cent Illinois	37940	36022	36349	36384	36646	38305	38323	38231	38894	38506	38969
Wis-Upper Mic	44867	45113	45380	46876	47602	47280	49587	50231	50925	51405	51986
MAPP	134005	130989	132796	132410	135634	136244	137272	139322	139787	141660	144713
NPCC	230986	233308	238050	239183	244608	250307	256781	260180	263439	266885	271954
New York	132802	132258	136138	139246	141307	144346	147551	147987	148591	149653	152444
NEPOOL	98184	101050	101912	99937	103301	105961	109230	112193	114848	117232	119510
SERC	569682	597478	612941	628703	646633	658940	674463	693017	712292	731400	751703
Florida	118745	121242	124784	127569	131490	135936	140663	146049	150902	158291	166810
Southern	155863	157780	163312	168320	171998	170325	173589	177875	182469	186780	192646
TVA	98937	116533	119287	122418	125424	128069	131124	134405	138365	141186	144435
VACAR	196137	201923	205558	210396	217721	224610	229087	234688	240556	245143	247812
SPP	243293	245474	253097	254579	258474	262628	267573	274092	279987	285559	292224
Southeast	106111	110709	114027	114341	114912	115723	117200	118654	120861	123564	126086
West Central	82298	80197	83795	83900	85909	88731	90861	94315	96634	98490	100683
Northern	54884	54568	55275	56338	57653	58174	59512	61123	62492	63505	65455
WSCC[b]	511797	500884	514032	522878	534429	541792	552029	557002	568512	577458	587531
NW Pool[b]	203672	205646	210382	214020	216635	218620	221443	223002	225771	228140	230675
Rocky Mt Area	41634	40834	42178	42709	43690	44792	45825	46661	47692	48512	49472
Ariz-N. Mex	68809	64070	65855	67569	69366	70829	73311	72082	74155	76331	77601
Calif-So. Nev	197682	190334	195617	198580	204738	207551	211450	215257	220894	224475	229783
TOTAL(U.S.)	2744042	2749152	2816093	2859782	2922708	2974727	3032217	3084492	3146537	3208815	3271445
NERC-Canada											
MAPP	28887	34766	36644	40092	42039	43507	43877	44567	44986	45482	46574
NPCC	280637	292683	295176	306104	316470	328483	335625	344864	352382	360128	367011
New Brunswick	15078	14169	14258	14178	13839	14933	16635	18883	19171	19557	20876
Nova Scotia	8531	8863	9486	9911	10269	10575	10819	11107	11394	11670	11937
Ontario	137518	143243	146391	151558	156289	160421	163631	165983	166079	168386	170187
Quebec	119510	126408	125041	130457	136073	142554	144540	148891	155738	160515	164011
WSCC	89903	86033	87810	90234	92851	95405	98515	101081	103908	106724	109829
TOTAL(Canada)	399427	413482	419630	436430	451360	467395	478017	490512	501276	512334	523414
NERC-Mexico											
WSCC	5393	5707	5993	6299	6633	6984	7366	7777	8224	8694	9205
TOTAL(Mexico)	5393	5707	5993	6299	6633	6984	7366	7777	8224	8694	9205
NERC-Total	3148862	3168341	3241716	3302511	3380701	3449106	3517600	3582781	3656037	3729843	3804064

[a] See Table 18, footnote c.

[b] The U.S. portion of the Northwest Power Pool (NWPP) is projecting an energy deficiency under adverse hydro conditions for 1990 through 1998. Included are imports that would be necessary from systems outside of NWPP (U.S.) ranging from 1,013 (1990) to 17,127 (1998) millions of kWh.

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Table 21
Actual and Projected Utility Internal Generation for Load[a] + NUGs[b] – Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	461278	450426	461223	466408	472416	479617	484035	491763	498912	507123	510689
ERCOT	199406	201987	206686	210925	215519	221674	225935	227764	233655	241291	247580
MAAC	195801	196034	202528	206343	212424	218068	224407	229331	234749	240064	245235
MAIN	195085	190020	192327	195775	199960	202846	207154	209327	212632	214764	217183
Cmnwlth Edison	78721	76320	77320	78630	81285	82430	83745	85290	86635	87760	89165
East Missouri	33557	32565	33278	33885	34427	34831	35499	35575	36178	37093	37063
S Cent Illinois	37940	36022	36349	36384	36646	38305	38323	38231	38894	38506	38969
Wis-Upper Mich	44867	45113	45380	46876	47602	47280	49587	50231	50925	51405	51986
MAPP	134005	130989	132796	132410	135634	136244	137272	139322	139787	141660	144713
NPCC	229766	232640	237472	238557	243986	249666	256140	259543	262758	266252	271370
New York	132162	132130	136000	139100	141165	144185	147390	147830	148390	149500	152340
NEPOOL	97604	100510	101472	99457	102821	105481	108750	111713	114368	116752	119030
SERC	568135	596485	611839	627603	645393	657447	672569	691152	710163	729030	749266
Florida	118745	121242	124784	127569	131490	135936	140663	146049	150902	158291	166810
Southern	155807	157730	163236	168249	171947	170277	173543	177818	182209	186511	192372
TVA	98447	116383	119117	122196	125148	127688	130473	133889	137768	140560	143780
VACAR	195136	201130	204702	209589	216808	223546	227890	233396	239284	243668	246304
SPP	243198	245404	253027	254509	258404	262558	267503	274022	279917	285489	292154
Southeast	106111	110709	114027	114341	114912	115723	117200	118654	120861	123564	126086
West Central	82203	80127	83725	83830	85839	88661	90791	94245	96564	98420	100613
Northern	54884	54568	55275	56338	57653	58174	59512	61123	62492	63505	65455
WSCC	511797	500884	514032	522878	534429	541792	552029	557002	568512	577458	587531
NW Pool	203672	205646	210382	214020	216635	218620	221443	223002	225771	228140	230675
Rocky Mt Area	41534	40752	42096	42617	43568	44670	45663	46499	47530	48350	49310
Ariz-N. Mex	68741	64005	65776	67485	69289	70755	73254	72026	74112	76288	77561
Calif-So. Nev	197850	190481	195778	198756	204937	207747	211669	215475	221099	224680	229985
TOTAL(U.S.)	2738471	2744869	2811930	2855408	2918165	2969912	3027044	3079226	3141085	3203131	3265721
NERC-Canada											
MAPP	28887	34766	36644	40092	42039	43507	43877	44567	44986	45482	46574
NPCC	280637	292683	295176	306104	316470	328483	335625	344864	352382	360128	367011
New Brunswick	15078	14169	14258	14178	13839	14933	16635	18883	19171	19557	20876
Nova Scotia	8531	8863	9486	9911	10269	10575	10819	11107	11394	11670	11937
Ontario	137518	143243	146391	151558	156289	160421	163631	165983	166079	168386	170187
Quebec	119510	126408	125041	130457	136073	142554	144540	148891	155738	160515	164011
WSCC	89903	86033	87810	90234	92851	95405	98515	101081	103908	106724	109829
TOTAL(Canada)	399427	413482	419630	436430	451360	467395	478017	490512	501276	512334	523414
NERC-Mexico											
WSCC	5393	5707	5993	6299	6633	6984	7366	7777	8224	8694	9205
TOTAL(Mexico)	5393	5707	5993	6299	6633	6984	7366	7777	8224	8694	9205
NERC-Total	3143291	3164058	3237553	3298137	3376158	3444291	3512427	3577515	3650585	3724159	3798340

[a] Total electrical energy generated internally to serve customers' loads. Includes pumped storage generation, but excludes pumped storage load.

[b] Non-utility generators (NUGs). See Table 12, footnote e.

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Table 22
Actual and Projected Net Electrical Energy Imports[a] – Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	-32080	-20049	-22105	-20619	-19764	-20304	-17937	-18558	-18291	-19094	-15952
ERCOT	2066	696	62	971	1514	2620	2715	4030	4096	3867	4056
MAAC	22835	22738	21018	22261	20462	19055	17367	16773	15956	15024	14071
MAIN	-984	624	1978	1879	1163	1701	932	2261	2596	4152	5537
Cmnwlth Edison	-425	-820	-570	-330	-1435	-980	-645	-540	-185	440	785
East Missouri	-509	577	599	555	629	832	785	1367	1436	1226	1987
S Cent Illinois	-2614	-1269	-1037	-526	-290	-1622	-1056	-325	-349	671	882
Wis-Upper Mich	2564	2136	2986	2180	2259	3471	1848	1759	1694	1815	1883
MAPP	-12268	-11533	-10546	-8294	-8847	-7047	-5539	-4923	-2538	-1685	-2049
NPCC	20366	21900	22790	27750	27455	26495	25217	27184	28974	30064	29674
New York	7886	9470	9100	9600	10535	10065	9210	11170	12960	14050	13660
NEPOOL	12480	12430	13690	18150	16920	16430	16007	16014	16014	16014	16014
SERC	25813	14071	17346	15494	16325	21191	23071	21302	20354	18505	15284
Florida	14374	17534	19181	19664	20558	21126	21014	20451	19933	16797	12912
Southern	-12726	-10523	-11150	-12960	-11603	-6650	-6445	-6532	-6372	-6314	-7637
TVA	17521	1683	2156	2262	1564	1604	1624	1137	396	790	830
VACAR	6644	5377	7159	6528	5806	5111	6878	6246	6397	7232	9179
SPP	-6019	-7441	-9624	-6550	-5313	-4737	-4435	-5807	-5854	-5630	-6611
Southeast	1426	-2368	-3576	-2040	-681	3	120	192	18	-458	-760
West Central	-5311	-3739	-5273	-4163	-4457	-5438	-5432	-6689	-6690	-6340	-6547
Northern	-2134	-1334	-775	-347	-175	698	877	690	818	1168	696
WSCC	10658	36597	32619	32109	30543	31376	31201	36275	36138	38053	39519
NW Pool	-5580	-2844	-4477	-5562	-5821	-6166	-6217	-5353	-5097	-5101	-5104
Rocky Mt Area	-4507	-3039	-3433	-3182	-3158	-3139	-3073	-3040	-2997	-2941	-2887
Ariz-N. Mex	-10348	-3297	-2396	-2133	-2030	-1753	-2345	693	533	433	1234
Calif-So. Nev	31093	45777	42925	42986	41552	42434	42836	43975	43699	45662	46276
TOTAL(U.S.)	30387	57603	53538	65001	63538	70350	72592	78537	81431	83256	83529
NERC-Canada											
MAPP	1039	-3878	-4736	-7789	-8739	-9086	-8594	-8453	-7961	-7730	-8158
NPCC	10878	8881	16083	13983	12410	10747	10144	6797	3813	3050	2315
New Brunswick	-2895	-1752	-1438	-979	-246	-954	-2277	-4144	-4048	-4047	-4982
Nova Scotia	18	59	182	107	36	5	4	0	0	0	0
Ontario	-3124	-6316	-6218	-7924	-7958	-8129	-8184	-7800	-6900	-6700	-6100
Quebec[b]	16879	16890	23557	22779	20578	19825	20601	18741	14761	13797	13397
WSCC	-7749	-474	-474	-327	-327	-327	-327	-327	-327	-327	-327
TOTAL(Canada)	4168	4529	10873	5867	3344	1334	1223	-1983	-4475	-5007	-6170
NERC-Mexico											
WSCC	-1921	-1928	-1928	-1927	-1932	-1927	-1927	-1927	-1932	-1927	-1927
TOTAL(Mexico)	-1921	-1928	-1928	-1927	-1932	-1927	-1927	-1927	-1932	-1927	-1927
NERC-Total	32634	60204	62483	68941	64950	69757	71888	74627	75024	76322	75432

[a] Net imports are equal to imports less exports.

[b] Although Quebec exports electrical energy to the United States, it also imports electrical energy from Churchill Falls in Labrador (Newfoundland), sometimes becoming a net importer of electrical energy. Because Churchill Falls is not a NERC member, this results in NPCC-Canada becoming a net importer in certain years, and reduces the amount that NERC-Canada as a whole appears to be exporting to the United States.

This section provides a tabulation of the fossil fuels actually used by the electric utilities in 1989 and projected to be used over the 1989-1998 period for electrical energy production. These estimates of coal, oil, and natural gas generally exclude the fuel requirements of non-utility generators.

1989-1998 Projections

The 1989 actual and 1989-1998 projected coal requirements for electrical energy production for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total are shown in Table 23. These same coal requirements are shown by NERC Region and subregion in Table 24. Tables 25 and 26 show similar data for oil, and Tables 27 and 28 for natural gas.

NERC-Total coal use is projected to increase by 16.2% (15.3% in the United States and 29.1% in Canada) from 1989 to 1998. Oil use is estimated to increase for NERC-Total over the forecast period by 29.3% (30.8% increase in the United States, 26% decrease in Canada, and 177% increase in Mexico). Total natural gas use in NERC is also projected to increase by 25.2% (24.2% in the United States and 77.4% in Canada).

Utility generated electrical energy from fossil fuels will be supplemented by utility generated electrical energy from nuclear, hydro, geothermal, and other (utility) units as well as from non-utility generators (NUGs). Table 18 provides an overview of NERC's projected electrical energy production by these various fuels.

Appendix C provides further detail on the electric utilities' fossil fuel requirements by NERC Region and subregion for particular types of coal, oil, and natural gas.

Comparison of Recent Projections

A comparison of the projections for 1997, the last common year of last year's ten-year forecast and the current ten-year forecast, shows that on an absolute magnitude basis the utilities' fossil fuel requirements are projected to increase by 30.4 million tons of coal, 36.7 million barrels of oil, and 178.1 million MCF of natural gas.

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Table 23
Coal Requirements[a] for Electrical Energy Production by Type – 1000's Tons
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
Western Lignite[b]	81774	79731	79670	80236	80556	82274	86047	89635	91835	98104	99903
Western Coal[b,d]	264816	254394	259818	264507	269204	276187	278318	279471	284847	288973	291586
Other Coal[b]	223410	220520	225041	226586	230208	231885	235977	239904	247042	250909	256612
TOTAL (U.S.)[c,d]	752687	729782	741127	749084	760289	770999	783428	795354	812246	829042	841668
NERC-Canada											
Western Lignite	12597	10746	10240	10089	10581	11143	11927	12747	13343	13880	14059
Western Coal	26551	27017	28157	28501	29313	29780	30515	30960	31826	32830	33732
Other Coal	12399	12424	11669	11985	9880	10997	12232	11049	13324	14216	16997
TOTAL (Canada)	51547	50187	50066	50575	49774	51920	54674	54756	58493	60926	64788
NERC-Mexico											
Western Lignite	0	0	0	0	0	0	0	0	0	0	0
Western Coal	0	0	0	0	0	0	0	0	0	0	0
Other Coal	0	0	0	0	0	0	0	0	0	0	0
TOTAL (Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total											
Western Lignite[b]	94371	90477	89910	90325	91137	93417	97974	102382	105178	111984	113962
Western Coal[b,d]	291367	281411	287975	293008	298517	305967	308833	310431	316673	321803	325318
Other Coal[b]	235809	232944	236710	238571	240088	242882	248209	250953	260366	265125	273609
NERC-Total[c,d]	804234	779969	791193	799659	810063	822919	838102	850110	870739	889968	906456

[a] Excludes coal requirements of non-utility generators (NUGs).

[b] Western lignite, western coal, and other coal do not add to the total by the amount of the ECAR coal figures on Table 24.

[c] Includes ECAR coal figures from Table 24.

[d] Includes coal requirements for the 360 MW Springerville 1 coal-fired non-utility generator in the Arizona-New Mexico Power Area of WSCC-U.S.

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Table 24
Regional Coal Requirements[a] for Electrical Energy Production – 1000's Tons
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	182687	175137	176598	177755	180321	180653	183086	186344	188522	191056	193567
ERCOT	68565	66265	66263	66804	67850	68032	72868	76267	78689	85437	87066
MAAC	41599	39676	38770	37693	38639	39654	39388	40515	41488	41338	42319
MAIN	52976	51682	52511	53802	54949	56967	58348	59885	60197	60751	61513
Cmnwlth Edison	9995	8450	9245	9910	9710	10685	11430	11695	12215	12580	12395
East Missouri	10536	11152	11022	10871	11476	11724	11619	12503	12458	12271	12911
S Cent Illinois	14931	14287	14383	14337	14592	14906	15304	15314	14932	15157	15458
Wis-Upper Mich	17514	17793	17861	18684	19171	19652	19995	20373	20592	20743	20749
MAPP	62596	61018	62144	62226	62297	64635	65077	64661	66171	66937	67565
NPCC	17441	18191	18347	18504	18792	19234	19244	19094	19152	19287	19364
New York	11166	12252	12155	12330	12795	12995	13005	12855	12913	13048	13125
NEPOOL	6275	5939	6192	6174	5997	6239	6239	6239	6239	6239	6239
SERC	140096	140619	145347	147253	148724	150435	153442	155310	161741	165518	168795
Florida	19874	23018	23197	23263	23299	23301	23501	23456	25686	26004	26102
Southern	48183	46908	49082	50046	52007	51978	52073	54223	56537	57577	60626
TVA	34999	33707	34402	34356	33399	33089	33472	33452	33906	34131	34834
VACAR	37040	36986	38666	39588	40019	42067	44396	44179	45612	47806	47233
SPP	85169	81290	85167	86596	87870	89861	90782	92677	94395	95688	96859
Southeast	24735	23245	24118	25135	25736	25721	25841	26187	26151	27149	27066
West Central	32787	31388	33208	33066	33709	34549	35288	36088	37337	37528	38012
Northern	27647	26657	27841	28395	28425	29591	29653	30402	30907	31011	31781
WSCC[b]	101558	95904	95980	98451	100847	101528	101193	100601	101891	103030	104620
NW Pool	42104	41974	41936	42304	42507	42557	42557	42784	42472	42602	42952
Rocky Mt Area	18848	17099	17538	18802	19248	19520	18756	18720	19237	19603	20076
Ariz-N. Mex[b]	23089	21796	21815	22140	23793	23891	24416	24214	24729	25207	26048
Calif-So. Nev	17517	15035	14691	15205	15299	15560	15464	14883	15453	15618	15544
TOTAL(U.S.)[b]	752687	729782	741127	749084	760289	770999	783428	795354	812246	829042	841668
NERC-Canada											
MAPP	10329	9434	9081	9144	9637	10199	10352	10554	11043	11580	11759
NPCC	17583	17236	16420	15509	13280	14300	16256	15692	18074	18966	21747
New Brunswick	747	533	521	547	519	740	1704	2321	2346	2586	3477
Nova Scotia	2497	2705	2730	2877	3005	3204	3814	3991	4229	4324	4552
Ontario	14339	13998	13169	12085	9756	10356	10738	9380	11499	12056	13718
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	23635	23517	24565	25922	26857	27421	28066	28510	29376	30380	31282
TOTAL(Canada)	51547	50187	50066	50575	49774	51920	54674	54756	58493	60926	64788
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total[b]	804234	779969	791193	799659	810063	822919	838102	850110	870739	889968	906456

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[a] Excludes coal requirements of non-utility generators (NUGs).

[b] Includes coal requirements for the 360 MW Springerville 1 coal-fired non-utility generator in the Arizona-New Mexico Power Area of WSCC-U.S.

Table 25
Oil Requirements[a] for Electrical Energy Production by Type – 1000's Barrels
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
Distillate Oil[b]	16324	13144	13523	13182	12341	14379	15097	16620	18748	23457	30546
Distillate Oil-ST	6450	4835	4621	4689	4522	4699	5015	4916	5012	5480	5638
Distillate Oil-CT	8703	7642	8263	7827	7041	8660	8686	9949	11927	16034	22672
Distillate Oil-CC	1171	667	639	666	778	1020	1396	1755	1809	1943	2236
Residual Oil[c]	216615	192697	175239	153208	153409	161391	172107	188695	196852	214331	238788
Residual Oil-ST	216001	190317	172666	151181	151215	158847	169290	185358	193124	209620	232643
Residual Oil-CT	414	1983	2127	1578	1683	1982	1968	2287	2636	3561	4865
Residual Oil-CC	200	397	446	449	511	562	849	1050	1092	1150	1280
Crude Oil-ST	0	0	0	0	0	0	0	0	0	0	0
TOTAL (U.S.)	232939	205841	188762	166390	165750	175770	187204	205315	215600	237788	269334
NERC-Canada											
Distillate Oil[b]	338	394	385	389	376	361	359	361	375	396	429
Distillate Oil-ST	197	257	259	233	244	217	217	220	220	230	240
Distillate Oil-CT	141	137	126	156	132	144	142	141	155	166	189
Distillate Oil-CC	0	0	0	0	0	0	0	0	0	0	0
Residual Oil[c]	12107	12253	13377	12375	8840	9410	6884	7743	7583	7318	5602
Residual Oil-ST	12107	12253	13377	12375	8840	9410	6884	7743	7583	7318	5602
Residual Oil-CT	0	0	0	0	0	0	0	0	0	0	0
Residual Oil-CC	0	0	0	0	0	0	0	0	0	0	0
Crude Oil-ST	0	0	0	559	3179	3336	3120	3202	3368	3388	3324
TOTAL (Canada)	12445	12647	13762	13323	12395	13107	10363	11306	11326	11102	9355
NERC-Mexico											
Distillate Oil[b]	54	638	76	0	0	0	0	0	0	0	0
Distillate Oil-ST	0	0	0	0	0	0	0	0	0	0	0
Distillate Oil-CT	54	638	76	0	0	0	0	0	0	0	0
Distillate Oil-CC	0	0	0	0	0	0	0	0	0	0	0
Residual Oil[c]	1899	1916	3267	3366	3424	3341	3984	4676	5429	6221	7081
Residual Oil-ST	1899	1916	3267	3366	3424	3341	3984	4676	5429	6221	7081
Residual Oil-CT	0	0	0	0	0	0	0	0	0	0	0
Residual Oil-CC	0	0	0	0	0	0	0	0	0	0	0
Crude Oil-ST	0	0	0	0	0	0	0	0	0	0	0
TOTAL (Mexico)	1953	2554	3343	3366	3424	3341	3984	4676	5429	6221	7081
NERC-Total											
Distillate Oil[b]	16716	14176	13984	13571	12717	14740	15456	16981	19123	23853	30975
Distillate Oil-ST	6647	5092	4880	4922	4766	4916	5232	5136	5232	5710	5878
Distillate Oil-CT	8898	8417	8465	7983	7173	8804	8828	10090	12082	16200	22861
Distillate Oil-CC	1171	667	639	666	778	1020	1396	1755	1809	1943	2236
Residual Oil[c]	230621	206866	191883	168949	165673	174142	182975	201114	209864	227870	251471
Residual Oil-ST	230007	204486	189310	166922	163479	171598	180158	197777	206136	223159	245326
Residual Oil-CT	414	1983	2127	1578	1683	1982	1968	2287	2636	3561	4865
Residual Oil-CC	200	397	446	449	511	562	849	1050	1092	1150	1280
Crude Oil-ST	0	0	0	559	3179	3336	3120	3202	3368	3388	3324
NERC-Total	247337	221042	205867	183079	181569	192218	201551	221297	232355	255111	285770

[a] Excludes oil requirements of non-utility generators (NUGs).

[b] Includes No.1 and No.2 fuel oil, kerosene, and jet fuel. Also includes amounts used at coal-burning plants for startup and flame stabilization.

[c] Includes No.4, No.5, and No.6 fuel oil.

Table 26
Regional Oil Requirements[a] for Electrical Energy Production – 1000's Barrel
(1989–1998 Forecast)

Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	4985	8039	8464	6854	6072	6545	7645	8236	8867	9800	11805
ERCOT	1235	1387	1438	1354	1382	1405	1397	1370	1379	1352	1351
MAAC	33906	30795	26013	24836	19886	21959	22502	26669	29391	32722	37597
MAIN	3084	1065	1244	1493	1691	2358	2946	3014	3624	5347	5949
Cmnwlth Edison	2233	415	570	775	1000	1540	2185	2200	2740	4290	4790
East Missouri	314	158	172	317	259	377	326	303	357	434	525
S Cent Illinois	325	323	317	284	303	318	323	397	412	507	518
Wis-Upper Mich	212	169	185	117	129	123	112	114	115	116	116
MAPP	504	437	489	820	1166	1708	1233	871	1014	1056	1200
NPCC	127800	130015	110904	89008	88947	93497	100513	104359	107475	112764	119160
New York	65441	66426	59412	48225	42303	44460	44746	43825	42670	44125	46558
NEPOOL	62359	63589	51492	40783	46644	49037	55767	60534	64805	68639	72602
SERC	46757	29632	36686	38823	42907	44354	46428	56433	57976	69435	85305
Florida	40753	23546	29958	32339	36617	39935	41447	50135	50298	60071	73059
Southern	608	481	444	312	450	467	393	387	448	449	547
TVA	474	372	383	379	370	377	465	937	1649	1958	2389
VACAR	4922	5233	5901	5793	5470	3575	4123	4974	5581	6957	9310
SPP	1147	1205	857	972	1288	1509	1858	1654	2609	2251	3599
Southeast	515	520	57	47	299	488	804	592	1497	1055	2394
West Central	94	97	98	98	98	98	98	98	120	164	163
Northern	538	588	702	827	891	923	956	964	992	1032	1042
WSCC	13521	3266	2667	2230	2411	2435	2682	2709	3265	3061	3368
NW Pool	733	0	96	104	104	104	104	104	104	104	104
Rocky Mt Area	27	28	28	36	36	37	37	39	40	40	41
Ariz-N. Mex	147	184	184	404	441	450	629	776	906	851	956
Calif-So. Nev	12614	3054	2359	1686	1830	1844	1912	1790	2215	2066	2267
TOTAL(U.S.)	232939	205841	188762	166390	165750	175770	187204	205315	215600	237788	269334
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	12445	12647	13762	13323	12395	13107	10363	11306	11326	11102	9355
New Brunswick	8954	8892	9177	8984	8483	9348	8192	9290	9649	9308	7816
Nova Scotia	2507	2731	3630	3873	3502	3377	1789	1619	1270	1325	932
Ontario	984	1024	955	466	410	382	382	397	407	469	607
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	12445	12647	13762	13323	12395	13107	10363	11306	11326	11102	9355
NERC-Mexico											
WSCC	1953	2554	3343	3366	3424	3341	3984	4676	5429	6221	7081
TOTAL(Mexico)	1953	2554	3343	3366	3424	3341	3984	4676	5429	6221	7081
NERC-Total	247337	221042	205867	183079	181569	192218	201551	221297	232355	255111	285770

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[a] Excludes oil requirements of non-utility generators (NUGs).

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Table 27
Natural Gas Requirements[a] for Electrical Energy Production by Type – 1000 MCF[b]
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
Firm Natural Gas	1715659	1495774	1371190	1329743	1409999	1480624	1547078	1604566	1670054	1673239	1749938
Firm Nat.Gas-ST[c]	1599720	1394353	1279679	1235271	1314611	1369776	1409632	1453894	1494497	1477443	1530128
Firm Nat.Gas-CT	13629	9142	9087	10349	11179	12761	19563	25063	31783	37483	52259
Firm Nat.Gas-CC	102310	92279	82424	84123	84209	98087	117883	125609	143774	158313	167551
Inter. Natural Gas	748348	892732	950018	908438	932553	959931	992443	1056587	1115042	1180505	1216372
Inter Nat.Gas-ST	635377	793320	826215	786294	799058	815788	822284	860259	887881	897733	920170
Inter Nat.Gas-CT	91434	42276	51558	48115	51711	47820	53505	59994	66929	80359	83636
Inter Nat.Gas-CC	21537	57136	72245	74029	81784	96323	116654	136334	160232	202413	212566
TOTAL (U.S.)[c]	2464007	2388506	2321208	2238181	2342552	2440555	2539521	2661153	2785096	2853744	2966310
NERC-Canada											
Firm Natural Gas	32133	42424	28846	22037	18581	24499	34854	41815	47218	46322	50064
Firm Nat.Gas-ST	24267	34441	23165	16796	13190	19241	27747	32204	34132	33954	35113
Firm Nat.Gas-CT	7866	7983	5681	5241	5391	5258	7107	9611	13086	12368	14951
Firm Nat.Gas-CC	0	0	0	0	0	0	0	0	0	0	0
Inter. Natural Gas	776	3102	345	6932	13582	13582	29753	14543	24053	30693	30703
Inter.Nat.Gas-ST	776	3102	9	6659	13309	13309	29459	14259	23759	30409	30409
Inter.Nat.Gas-CT	0	0	336	273	273	273	294	284	294	284	294
Inter.Nat.Gas-CC	0	0	0	0	0	0	0	0	0	0	0
TOTAL (Canada)	32909	45526	29191	28969	32163	38081	64607	56358	71271	77015	80767
NERC-Mexico											
Firm Natural Gas	0	0	0	0	0	0	0	0	0	0	0
Firm Nat.Gas-ST	0	0	0	0	0	0	0	0	0	0	0
Firm Nat.Gas-CT	0	0	0	0	0	0	0	0	0	0	0
Firm Nat.Gas-CC	0	0	0	0	0	0	0	0	0	0	0
Inter. Natural Gas	0	0	0	0	0	0	0	0	0	0	0
Inter Nat.Gas-ST	0	0	0	0	0	0	0	0	0	0	0
Inter Nat.Gas-CT	0	0	0	0	0	0	0	0	0	0	0
Inter Nat.Gas-CC	0	0	0	0	0	0	0	0	0	0	0
TOTAL (Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total											
Firm Natural Gas	1747792	1538198	1400036	1351780	1428580	1505123	1581932	1646381	1717272	1719561	1800002
Firm Nat.Gas-ST[c]	1623987	1428794	1302844	1252067	1327801	1389017	1437379	1486098	1528629	1511397	1565241
Firm Nat.Gas-CT	21495	17125	14768	15590	16570	18019	26670	34674	44869	49851	67210
Firm Nat.Gas-CC	102310	92279	82424	84123	84209	98087	117883	125609	143774	158313	167551
Inter. Natural Gas	749124	895834	950363	915370	946135	973513	1022196	1071130	1139095	1211198	1247075
Inter Nat.Gas-ST	636153	796422	826224	792953	812367	829097	851743	874518	911640	928142	950579
Inter Nat.Gas-CT	91434	42276	51894	48388	51984	48093	53799	60278	67223	80643	83930
Inter Nat.Gas-CC	21537	57136	72245	74029	81784	96323	116654	136334	160232	202413	212566
NERC-Total[c]	2496916	2434032	2350399	2267150	2374715	2478636	2604128	2717511	2856367	2930759	3047077

[a] Excludes natural gas requirements of non-utility generators (NUGs).

[b] MCF means thousands of cubic feet. Therefore, 1000 MCF is equivalent to one (1) million cubic feet.

[c] Includes natural gas requirements for the 330 MW Fort St. Vrain gas-fired non-utility generator unit in the Rocky Mountain Power Area of WSCC-U.S.

Table 28
Regional Natural Gas Requirements[a] for Electrical Energy Production – 1000 MCF[b]
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	12480	9890	8240	4530	3530	3260	14620	18690	29780	34330	47100
ERCOT	874953	823650	764362	741547	760564	817163	809670	807696	837382	819882	825682
MAAC	66165	64385	59057	53946	44426	54206	63007	70389	82043	96088	112005
MAIN	7252	3466	3353	4590	5521	6948	7290	8112	8684	11421	13233
Cmnwlth Edison	3747	690	200	295	355	710	1385	1220	1740	3250	3650
East Missouri	617	75	75	131	131	131	131	131	131	131	131
S Cent Illinois	887	531	782	1167	1081	993	1102	1326	1270	1539	1624
Wis-Upper Mich	2001	2170	2296	2997	3954	5114	4672	5435	5543	6501	7828
MAPP	11810	24385	37495	34050	36912	39923	44210	44172	66876	56775	47035
NPCC	168796	150231	160711	163863	166335	170454	174559	175256	175907	176474	177029
New York	147030	130350	140600	142800	143500	145300	148400	148400	148400	148400	148400
NEPOOL	21766	19881	20111	21063	22835	25154	26159	26856	27507	28074	28629
SERC	114788	224807	233049	227944	239401	248061	249040	256893	259118	263195	270669
Florida	98423	210687	214789	207386	210712	219978	215708	219997	220607	220049	220094
Southern	13040	13798	13146	12452	13928	11982	16638	17730	20222	21749	26597
TVA	1	2	44	36	34	305	413	2019	2253	2485	3082
VACAR	3324	320	5070	8070	14727	15796	16281	17147	16036	18912	20896
SPP	613567	625956	631691	603963	621499	637271	658002	702699	715771	751215	784343
Southeast	370388	398929	394698	373326	384855	384711	382924	407559	410018	427622	450995
West Central	228121	212111	220095	211958	219656	232802	248866	269221	272562	287238	300558
Northern	15058	14916	16898	18679	16988	19758	26212	25919	33191	36355	32790
WSCC[c]	594196	461736	423250	403748	464364	463269	519123	577246	609535	644364	689214
NW Pool	5627	17817	37127	37285	37815	37610	37934	37497	37814	37934	37934
Rocky Mt Area[c]	8036	3698	3481	3904	4079	4376	21380	26592	26592	28408	29399
Ariz-N. Mex	50225	58025	35898	36051	42725	44844	50273	61073	58597	65346	80099
Calif-So. Nev	530308	382196	346744	326508	379745	376439	409536	452084	486532	512676	541782
TOTAL(U.S.)[c]	2464007	2388506	2321208	2238181	2342552	2440555	2539521	2661153	2785096	2853744	2966310
NERC-Canada											
MAPP	7538	9129	3665	3700	2955	2281	2600	2990	4730	3167	3771
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	25371	36397	25526	25269	29208	35800	62007	53368	66541	73848	76996
TOTAL(Canada)	32909	45526	29191	28969	32163	38081	64607	56358	71271	77015	80767
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total[c]	2496916	2434032	2350399	2267150	2374715	2478636	2604128	2717511	2856367	2930759	3047077

[a] Excludes natural gas requirements of non-utility generators (NUGs).

[b] MCF means thousands of cubic feet. Therefore, 1000 MCF is equivalent to one (1) million cubic feet.

[c] Includes natural gas requirements for the 330 MW Fort St. Vrain gas-fired non-utility generator unit in the Rocky Mountain Power Area of WSCC-U.S.

This section of the report tabulates the planned NERC utility and non-utility generating unit additions and retirements over the January 1, 1989 to December 31, 1998 period.

1989-1998 Projections

Planned generating capacity additions for NERC over the forecast period total 93,600 MW. Of this total, about 74,500 MW or about 79.6% will be utility-owned capacity and the other 20.4% will be non-utility generators. Figure 11 shows the projected capacity additions by fuel for NERC-U.S., NERC-Canada, and NERC-Mexico. Planned retirements during this period will approach 6,800 MW. A summary of these capacity changes for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total is shown in Table 29.

The total projected (utility and non-utility) generating unit additions by NERC Region and subregion are tabulated in Table 30. A listing of the projected (utility and non-utility) generating unit additions by in-service date is included in Appendix D. Appendix M provides detail on units identified by utilities as jointly-owned units.

The estimated 19,100 MW of non-utility generator capacity additions of Table 29 are shown by NERC Region and subregion in Table 39. Details on the specific non-utility generating units comprising Table 39 are included in Appendix L.

Additional information on the 6,800 MW of planned unit retirements is summarized in Table 40 and listed by in-service date in Appendix N.

Summary by Fuel

Planned utility unit additions by fuel and by NERC Region and subregion are summarized in Tables 31 through 38. Similar listings of utility additions by in-service date and by fuel are included in Appendixes E through K.

The specific codes and abbreviations used in the generating unit Appendixes D through N for unit type, fuel type, ownership, and construction status are listed on page 173.

The NERC regional and subregional abbreviations used in Appendixes D through N and throughout this report are defined on page 174. States and provinces in which the units are located are denoted by their two-character postal codes. Utility system abbreviations follow the conventions used in the Regional IE-411 reports to the U.S. Department of Energy. Utility system abbreviations are not defined.

Table 29 — Generating Unit Additions and Retirements (1989-1998 Forecast)

	NERC-U.S.		NERC-Canada		NERC-Mexico		NERC-Total	
Type	Thousands of MW	% of Total	Thousands of MW	% of Total	Thousands of MW	% of Total	Thousands of MW	% of Total
Nuclear	11.2[a,b]	15.5	3.5	17.1	0.0	0.0	14.7[a,b]	15.7
Coal	13.5	18.7	4.2	20.5	0.0	0.0	17.7	18.9
Hydro	1.4	1.9	11.0	53.3	0.0	0.0	12.4	13.3
Oil/Gas	20.2	28.0	1.0	4.5	0.6[c]	85.2	21.8[c]	23.3
Pumped Storage	2.4	3.3	0.0	0.0	0.0	0.0	2.4	2.5
Other (Utility)	5.4	7.5	0.0	0.0	0.1[c]	14.8	5.5[c]	5.9
Non-Utility Generators	18.1	25.1	1.0	4.6	0.0	0.0	19.1	20.4
Additions	**72.2**	**100.0**	**20.7**	**100.0**	**0.7**	**100.0**	**93.6**	**100.0**
Retirements	**6.6**		**0.2**		**0.0**		**6.8**	

Note: Figures are rounded. Percentages are based on complete data.

[a] Includes the Shoreham 809 MW nuclear unit.

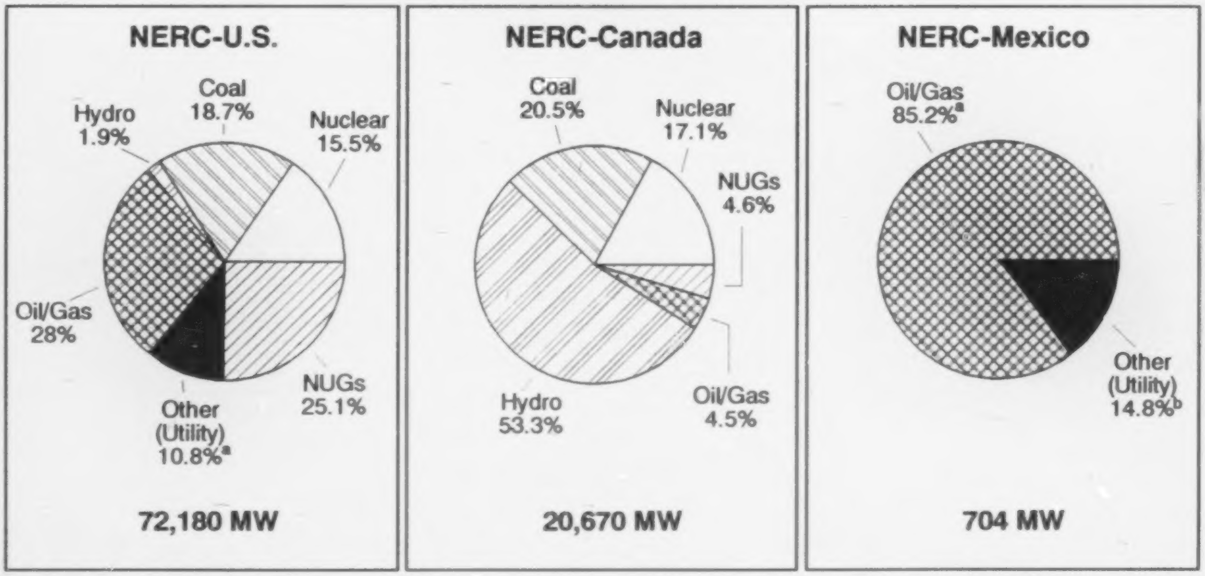
[b] Perry 2 and Washington Nuclear Project units, WNP 1 and 3, are not included.

[c] Includes 600 MW of oil-fired and 104 MW of geothermal additions in that part of the Comision Federal de Electricidad system in the northern portion of Baja California, Mexico, which is interconnected with the U.S. systems.

Figure 11

Projected Generating Unit Additions

(1989-1998 Forecast)



[a] Includes 3.3% pumped storage units.

[a] All oil-fired units. [b] All geothermal units.

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Table 30
Total Generating Unit Additions (Utility and Non-Utility) – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	1344	1413	1949	298	150	278	645	790	608	549	8024
ERCOT	2418	476	1050	198	83	630	618	1483	1349	1327	9632
MAAC	598	2318	969	1366	942	568	325	640	775	650	9151
MAIN	0	13	0	51	229	210	222	150	62	128	1065
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	36	76	0	0	0	0	0	112
Wis-Upper Mich	0	13	0	15	153	210	222	150	62	128	953
MAPP	0	154	83	70	48	0	230	80	230	502	1397
NPCC	742	3038	1183	696	438	0	577	407	0	45	7126
New York	346	1259	866	641	425	0	180	400	0	45	4162
NEPOOL	396	1779	317	55	13	0	397	7	0	0	2964
SERC	2726	1063	2221	2475	2148	2677	3258	2325	2791	2141	23825
Florida	106	100	172	45	1015	776	655	883	258	210	4220
Southern	2601	75	852	0	80	1275	1008	1084	963	1323	9261
TVA	0	0	0	1170	0	0	1170	0	1212	0	3552
VACAR	19	888	1197	1260	1053	626	425	358	358	608	6792
SPP	219	402	365	20	126	10	202	375	288	447	2454
Southeast	3	387	53	0	0	10	0	0	0	0	453
West Central	125	0	300	0	35	0	0	0	100	240	800
Northern	91	15	12	20	91	0	202	375	188	207	1201
WSCC	1702	2363	474	281	579	933	527	875	888	887	9509
NW Pool	132	39	83	32	61	42	61	0	205	0	655
Rocky Mt Area	9	141	22	103	122	544	70	0	54	485	1550
Ariz-N. Mex	14	360	0	0	2	0	45	87	10	0	518
Calif-So. Nev	1547	1823	369	146	394	347	351	788	619	402	6786
TOTAL(U.S.)	9749	11240	8294	5455	4743	5306	6604	7125	6991	6676	72183[a]
NERC-Canada											
MAPP	0	240	646	640	46	92	46	276	0	0	1986
NPCC	2033	1024	1766	2389	1124	326	3163	495	1215	2729	16264
New Brunswick	25	0	0	0	450	170	0	0	450	0	1095
Nova Scotia	0	0	150	0	150	0	150	0	150	150	750
Ontario	947	1001	881	981	95	116	306	200	20	570	5117
Quebec	1061	23	735	1408	429	40	2707	295	595	2009	9302
WSCC	386	482	511	0	0	0	81	360	81	520	2421
TOTAL(Canada)	2419	1746	2923	3029	1170	418	3290	1131	1296	3249	20671[a]
NERC-Mexico											
WSCC	0	300	0	52	52	150	0	150	0	0	704
TOTAL(Mexico)	0	300	0	52	52	150	0	150	0	0	704[a]
NERC-Total	12168	13286	11217	8536	5965	5874	9894	8406	8287	9925	93558[a]

[a] Totals may not add due to rounding.

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Table 31
Nuclear Generating Unit Additions[a] – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	2400	0	1150	0	0	0	0	0	0	0	3550
MAAC	0	1055	0	0	0	0	0	0	0	0	1055
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	1959	0	0	0	0	0	0	0	0	1959
New York	0	809	0	0	0	0	0	0	0	0	809
NEPOOL	0	1150	0	0	0	0	0	0	0	0	1150
SERC	1086	0	0	1170	0	0	1170	0	1212	0	4638
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	1086	0	0	0	0	0	0	0	0	0	1086
TVA	0	0	0	1170	0	0	1170	0	1212	0	3552
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	3486	3014	1150	1170	0	0	1170	0	1212	0	11202[b]
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	881	881	881	881	0	0	0	0	0	0	3524
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	881	881	881	881	0	0	0	0	0	0	3524
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	881	881	881	881	0	0	0	0	0	0	3524[b]
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	4367	3895	2031	2051	0	0	1170	0	1212	0	14726[b]

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[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Totals may not add due to rounding.

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Table 32
Coal-Fired Generating Unit Additions[a] – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	1300	0	1795	0	0	0	0	0	0	0	3095
ERCOT	0	0	0	498	0	750	750	845	1248	1045	5136
MAAC	0	0	0	640	0	0	0	0	0	0	640
MAIN	0	13	0	0	56	60	0	0	0	0	129
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	56	0	0	0	0	0	56
Wis-Upper Mich	0	13	0	0	0	60	0	0	0	0	73
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	1515	0	667	0	0	0	0	768	173	125	3248
Florida	0	0	0	0	0	0	0	768	173	0	941
Southern	1515	0	667	0	0	0	0	0	0	125	2307
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	3	81	0	0	0	0	0	0	80	70	234
Southeast	3	81	0	0	0	0	0	0	0	0	84
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	80	70	150
WSCC	0	360	0	0	0	0	0	0	125	485	970
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	485	485
Ariz-N. Mex	0	360	0	0	0	0	0	0	0	0	360
Calif-So. Nev	0	0	0	0	0	0	0	0	125	0	125
TOTAL(U.S.)	2818	454	2462	1138	56	810	750	1613	1626	1725	13452[b]
NERC-Canada											
MAPP	0	0	0	280	0	0	0	276	0	0	556
NPCC	0	0	150	0	600	170	150	0	600	150	1820
New Brunswick	0	0	0	0	450	170	0	0	450	0	1070
Nova Scotia	0	0	150	0	150	0	150	0	150	150	750
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	386	366	386	0	0	0	0	360	0	360	1858
TOTAL(Canada)	386	366	536	280	600	170	150	636	600	510	4234[b]
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	3204	820	2998	1418	656	980	900	2249	2226	2235	17686[b]

[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Totals may not add due to rounding.

Table 33
Hydro (Conventional) Generating Unit Additions[a] – Summer – MW

(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	0	0	5	0	0	0	0	0	0	0	5
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	3	0	0	0	0	0	3
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	3	0	0	0	0	0	3
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	40	0	37	55	0	21	337	0	0	490
New York	0	12	0	14	42	0	0	330	0	0	398
NEPOOL	0	28	0	23	13	0	21	7	0	0	92
SERC	0	0	0	0	0	0	0	0	0	0	0
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	25	0	0	0	0	10	0	0	0	0	35
Southeast	0	0	0	0	0	10	0	0	0	0	10
West Central	25	0	0	0	0	0	0	0	0	0	25
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	54	202	185	41	53	81	41	41	146	19	863
NW Pool	0	2	3	26	6	42	6	0	10	0	95
Rocky Mt Area	0	0	22	15	0	0	0	0	0	0	37
Ariz-N. Mex	14	0	0	0	0	0	0	0	0	0	14
Calif-So. Nev	40	200	160	0	47	39	35	41	136	19	717
TOTAL(U.S.)	79	242	190	78	111	91	62	378	146	19	1396[b]
NERC-Canada											
MAPP	0	240	600	360	0	92	0	0	0	0	1292
NPCC	1056	0	680	1264	5	66	2913	450	570	2559	9563
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	5	66	256	180	0	550	1057
Quebec	1056	0	680	1264	0	0	2657	270	570	2009	8506
WSCC	0	0	0	0	0	0	0	0	0	160	160
TOTAL(Canada)	1056	240	1280	1624	5	158	2913	450	570	2719	11015[b]
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	1135	482	1470	1702	116	249	2975	828	716	2738	12411[b]

[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Totals may not add due to rounding.

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Table 34
Pumped Storage Generating Unit Additions[a] – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	75	225	500	500	0	0	848	0	0	2148
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	75	75	0	0	0	0	848	0	0	998
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	150	500	500	0	0	0	0	0	1150
SPP	0	0	0	0	0	0	0	0		0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	64	45	0	0	100	209
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	64	0	0	0	0	64
Ariz-N. Mex	0	0	0	0	0	0	45	0	0	0	45
Calif-So. Nev	0	0	0	0	0	0	0	0	0	100	100
TOTAL(U.S.)	0	75	225	500	500	64	45	848	0	100	2357[b]
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	0	75	225	500	500	64	45	848	0	100	2357[b]

[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Totals may not add due to rounding.

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Table 35
Oil–Fired Generating Unit Additions[a] – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989–1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	0	0	0	0	0	130	0	130	0	130	390
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	83	105	105	100	0	325	125	325	200	425	1793
MAIN	0	0	0	15	0	0	0	0	0	0	15
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	15	0	0	0	0	0	0	15
MAPP	0	116	83	70	23	0	80	80	80	22	554
NPCC	240	0	0	0	0	0	0	0	0	0	240
New York	240	0	0	0	0	0	0	0	0	0	240
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	20	0	0	0	75	75	75	75	140	460
Florida	0	20	0	0	0	75	75	75	75	140	460
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	20	29	12	0	0	0	0	0	0	0	61
Southeast	0	14	0	0	0	0	0	0	0	0	14
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	20	15	12	0	0	0	0	0	0	0	47
WSCC	0	0	0	0	0	70	70	140	0	0	280
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	70	70	140	0	0	280
TOTAL(U.S.)	343	270	200	185	23	600	350	750	355	717	3793[b]
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	25	0	0	124	372	0	0	0	0	0	521
New Brunswick	25	0	0	0	0	0	0	0	0	0	25
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	124	372	0	0	0	0	0	496
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	25	0	0	124	372	0	0	0	0	0	521[b]
NERC-Mexico											
WSCC	0	300	0	0	0	150	0	150	0	0	600
TOTAL(Mexico)	0	300	0	0	0	150	0	150	0	0	600[b]
NERC-Total	368	570	200	309	395	750	350	900	355	717	4914[b]

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[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Totals may not add due to rounding.

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Table 36
Gas-Fired Generating Unit Additions[a] – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	0	0	80	0	80	140	140	380	275	240	1335
ERCOT	0	390	0	0	208	68	208	588	101	68	1631
MAAC	208	75	60	0	200	0	200	300	425	225	1693
MAIN	0	0	0	36	170	150	222	150	0	111	839
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	36	20	0	0	0	0	0	56
Wis-Upper Mich	0	0	0	0	150	150	222	150	0	111	783
MAPP	0	0	0	0	0	0	0	0	0	80	80
NPCC	0	225	225	0	0	0	377	0	0	0	827
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	225	225	0	0	0	377	0	0	0	827
SERC	99	127	231	127	396	2032	1563	310	1037	1282	7204
Florida	99	0	25	0	220	701	555	0	0	50	1650
Southern	0	0	110	0	80	1235	1008	236	963	1158	4790
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	127	96	127	96	96	0	74	74	74	764
SPP	71	292	43	20	106	0	202	375	108	377	1594
Southeast	0	292	43	0	0	0	0	0	0	0	335
West Central	0	0	0	0	35	0	0	0	0	240	275
Northern	71	0	0	20	71	0	202	375	108	137	984
WSCC	0	0	0	0	230	230	160	395	214	0	1229
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	54	0	54
Ariz-N. Mex	0	0	0	0	0	0	0	75	0	0	75
Calif-So. Nev	0	0	0	0	230	230	160	320	160	0	1100
TOTAL(U.S.)	378	1109	639	183	1390	2620	3072	2498	2160	2383	16432[b]
NERC-Canada											
MAPP	0	0	46	0	46	0	46	0	0	0	138
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	116	0	0	0	0	81	0	81	0	278
TOTAL(Canada)	0	116	46	0	46	0	127	0	81	0	416[b]
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	378	1225	685	183	1436	2620	3199	2498	2241	2383	16848[b]

[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Totals may not add due to rounding.

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Table 37
Oil– and Gas–Fired Generating Unit Additions[a] – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	0	0	80	0	80	270	140	510	275	370	1725
ERCOT	0	390	0	0	208	68	208	588	101	68	1631
MAAC	291	180	165	100	200	325	325	625	625	650	3486
MAIN	0	0	0	51	170	150	222	150	0	111	854
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	36	20	0	0	0	0	0	56
Wis-Upper Mich	0	0	0	15	150	150	222	150	0	111	798
MAPP	0	116	83	70	23	0	80	80	80	102	634
NPCC	240	225	225	0	0	0	377	0	0	0	1067
New York	240	0	0	0	0	0	0	0	0	0	240
NEPOOL	0	225	225	0	0	0	377	0	0	0	827
SERC	99	147	231	127	396	2107	1638	385	1112	1422	7664
Florida	99	20	25	0	220	776	630	75	75	190	2110
Southern	0	0	110	0	80	1235	1008	236	963	1158	4790
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	127	96	127	96	96	0	74	74	74	764
SPP	91	321	55	20	106	0	202	375	108	377	1655
Southeast	0	306	43	0	0	0	0	0	0	0	349
West Central	0	0	0	0	35	0	0	0	0	240	275
Northern	91	15	12	20	71	0	202	375	108	137	1031
WSCC	0	0	0	0	230	300	230	535	214	0	1509
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	54	0	54
Ariz-N. Mex	0	0	0	0	0	0	0	75	0	0	75
Calif-So. Nev	0	0	0	0	230	300	230	460	160	0	1380
TOTAL(U.S.)	721	1379	839	368	1413	3220	3422	3248	2515	3100	20225[b]
NERC-Canada											
MAPP	0	0	46	0	46	0	46	0	0	0	138
NPCC	25	0	0	124	372	0	0	0	0	0	521
New Brunswick	25	0	0	0	0	0	0	0	0	0	25
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	124	372	0	0	0	0	0	496
WSCC	0	116	0	0	0	0	81	0	81	0	278
TOTAL(Canada)	25	116	46	124	418	0	127	0	81	0	937[b]
NERC-Mexico											
WSCC	0	300	0	0	0	150	0	150	0	0	600
TOTAL(Mexico)	0	300	0	0	0	150	0	150	0	0	600[b]
NERC-Total	746	1795	885	492	1831	3370	3549	3398	2596	3100	21762[b]

[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Totals may not add due to rounding.

Table 38
Other (Utility) Generating Unit Additions[a] – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	0	0	0	0	0	0	160	260	260	160	840
ERCOT	0	0	0	0	0	137	0	50	0	350	537
MAAC	0	0	0	0	177	18	0	15	150	0	360
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	150	0	150	400	700
NPCC	1	0	9	0	0	0	0	0	0	0	10
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	1	0	9	0	0	0	0	0	0	0	10
SERC	8	58	15	58	200	290	250	284	284	574	2021
Florida	8	0	0	0	200	0	0	0	0	0	208
Southern	0	0	0	0	0	40	0	0	0	40	80
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	58	15	58	0	250	250	284	284	534	1733
SPP	0	0	10	0	20	0	0	0	0	0	30
Southeast	0	0	10	0	0	0	0	0	0	0	10
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	20	0	0	0	0	0	20
WSCC	39	57	13	0	2	0	78	280	198	275	942
NW Pool	38	6	0	0	0	0	0	0	0	0	44
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	2	0	0	0	8	0	10
Calif-So. Nev	1	51	13	0	0	0	78	280	190	275	888
TOTAL(U.S.)	48	115	47	58	399	445	638	889	1042	1759	5440[b]
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0[b]
NERC-Mexico											
WSCC	0	0	0	52	52	0	0	0	0	0	104
TOTAL(Mexico)	0	0	0	52	52	0	0	0	0	0	104[b]
NERC-Total	48	115	47	110	451	445	638	889	1042	1759	5544[b]

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[a] Includes utility-owned capacity other than nuclear, coal-fired, oil-fired, gas-fired, conventional hydro, and pumped storage units. Excludes non-utility generators (NUGs).

[b] Totals may not add due to rounding.

Table 39
Non-Utility Generator (NUG) Additions[a] - Summer - MW
(January 1, 1989 - December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	44	1413	69	298	70	8	345	20	73	19	2359
ERCOT	18	86	-100	-300	-125	-325	-340	0	0	-136	-1222
MAAC	307	1083	804	626	565	225	0	0	0	0	3610
MAIN	0	0	0	0	0	0	0	0	62	17	79
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	62	17	79
MAPP	0	38	0	0	25	0	0	0	0	0	63
NPCC	502	814	949	659	385	0	180	70	0	45	3604
New York	106	438	866	627	384	0	180	70	0	45	2716
NEPOOL	396	376	83	32	1	0	0	0	0	0	888
SERC	19	783	1083	620	1052	280	200	40	10	20	4107
Florida	0	80	147	45	595	0	25	40	10	20	962
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	19	703	936	575	457	280	175	0	0	0	3145
SPP	100	0	300	0	0	0	0	0	100	0	500
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	100	0	300	0	0	0	0	0	100	0	500
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	1609	1744	276	240	294	488	133	19	205	8	5016
NW Pool	94	31	80	6	55	0	55	0	195	0	516
Rocky Mt Area	9	141	0	88	122	480	70	0	0	0	910
Ariz-N. Mex	0	0	0	0	0	0	0	12	2	0	14
Calif-So. Nev	1506	1572	196	146	117	8	8	7	8	8	3576
TOTAL(U.S.)	2599	5961	3381	2143	2266	676	518	149	450	-27	18116[b]
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	71	143	55	120	147	90	100	45	45	20	836
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	66	120	0	100	90	50	50	20	20	20	536
Quebec	5	23	55	20	57	40	50	25	25	0	300
WSCC	0	0	125	0	0	0	0	0	0	0	125
TOTAL(Canada)	71	143	180	120	147	90	100	45	45	20	961[b]
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	2670	6104	3561	2263	2413	766	618	194	495	-7	19077[b]

[a] Non-utility generators (NUGs) include the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak demand.

[b] Totals may not add due to rounding.

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Table 40
Generating Unit Retirements[a] – Summer – MW
(January 1, 1989 – December 31, 1998)

	PROJECTED										1989-1998
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
NERC-U.S.											
ECAR	0	369	60	124	0	0	92	0	186	0	831
ERCOT	0	0	36	0	276	145	74	204	153	348	1236
MAAC	24	150	0	3	0	2	0	0	2	215	396
MAIN	190	0	0	0	0	0	100	187	550	54	1081
Cmnwlth Edison	0	0	0	0	0	0	100	187	550	0	837
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	190	0	0	0	0	0	0	0	0	54	244
MAPP	0	0	0	14	0	0	4	1	0	12	31
NPCC	0	0	172	118	201	0	0	0	40	39	570
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	172	118	201	0	0	0	40	39	570
SERC	0	61	0	0	15	0	200	36	0	58	370
Florida	0	0	0	0	15	0	200	20	0	28	263
Southern	0	61	0	0	0	0	0	16	0	30	107
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	20	157	173	25	311	154	180	55	312	1387
Southeast	0	0	89	173	25	311	122	180	55	312	1267
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	20	68	0	0	0	32	0	0	0	120
WSCC	8	336	0	6	140	148	0	0	0	0	638
NW Pool	0	0	0	6	0	0	0	0	0	0	6
Rocky Mt Area	8	238	0	0	0	8	0	0	0	0	254
Ariz-N. Mex	0	98	0	0	0	0	0	0	0	0	98
Calif-So. Nev	0	0	0	0	140	140	0	0	0	0	280
TOTAL(U.S.)	222	936	425	438	657	606	624	608	986	1038	6540[b]
NERC-Canada											
MAPP	0	0	0	61	0	0	0	0	0	0	61
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	44	92	0	0	5	0	13	12	0	0	166
TOTAL(Canada)	44	92	0	61	5	0	13	12	0	0	227[b]
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	266	1028	425	499	662	606	637	620	986	1038	6767[b]

[a] Includes utility and non-utility generating units.

[b] Totals may not add due to rounding.

The transmission data included in Figures 12 and 13 and Tables 41 through 45 were reported directly to NERC. It includes the circuit miles of high voltage transmission lines operating at 230 kV and above, both alternating current (ac) and direct current (dc), for the nine Regional Reliability Councils.

1989-1998 Projections

As of December 31, 1988, the transmission systems in NERC, as shown in Table 41, were comprised of over 185,000 circuit miles of high voltage lines. The planned transmission additions by voltage for the NERC Regions and subregions over the next two 5-year periods (1989-1993 and 1994-1998) are shown in Tables 42 and 43, respectively, and are estimated to total 20,213 circuit miles.

By the end of December 1998, the NERC high voltage transmission systems are expected to exceed 206,000 circuit miles. A breakdown of the December 1998 circuit miles by voltage for the NERC Regions and subregions is shown in Table 44. Table 45 summarizes the NERC existing transmission lines and planned transmission line additions over the 1988 to 1998 period.

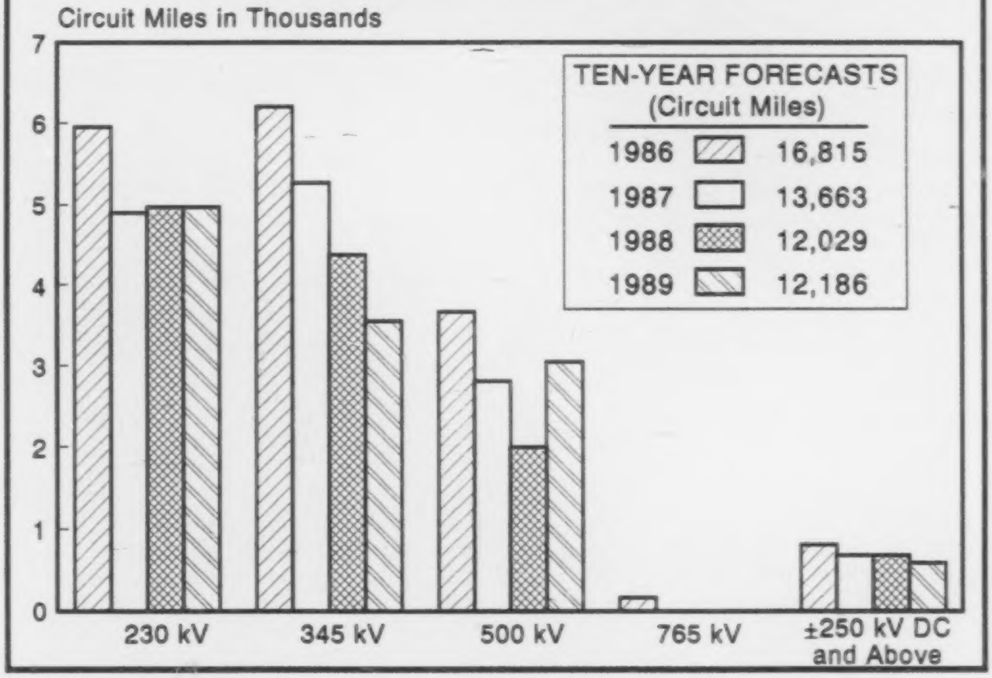
Comparison of Recent Projections

Comparisons of the current 1989 ten-year projections with the 1988, 1987, and 1986 ten-year projections are shown in Figures 12 (United States) and 13 (Canada). The predominant voltage of the transmission lines to be added in NERC-U.S. in the next ten years will be 230 kV. In NERC-Canada, the predominant voltage of planned additions continues to be 230 kV as in recent forecasts. In NERC-Mexico, only 230 kV lines are planned over the 1989-1998 period.

NERC-U.S.

Figure 12

Planned Transmission Additions



NERC-Canada

Figure 13

Planned Transmission Additions

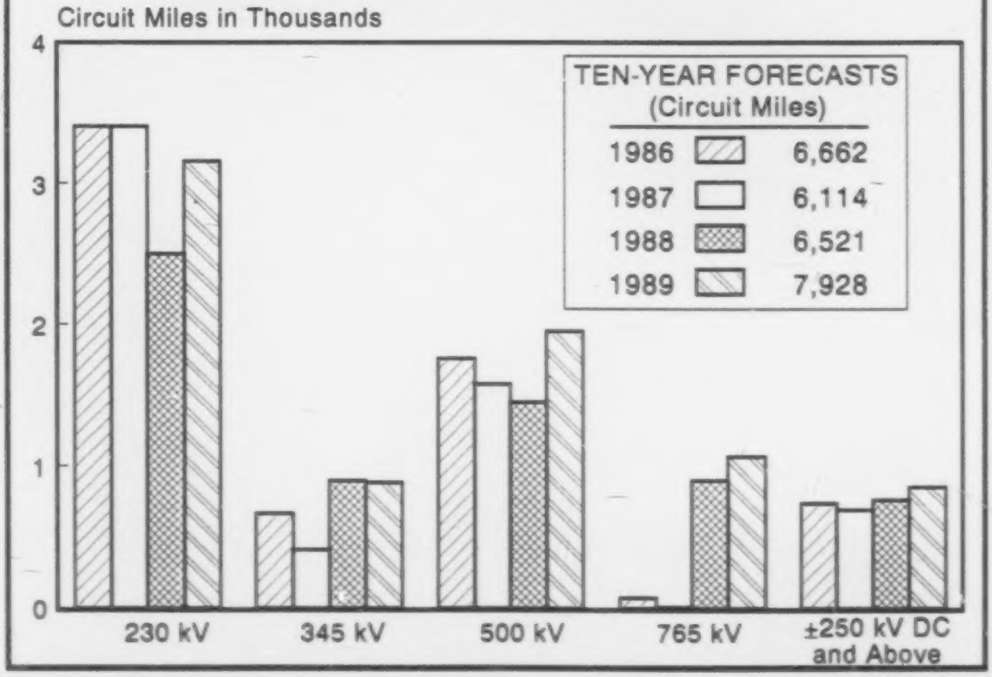


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Table 41
Existing Transmission (230 kV & Above) Systems – Circuit Miles
(December 31, 1988)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	1101	11789	852	2022	15764	0	0	0	0	0	15764
ERCOT	0	6871	0	0	6871	0	0	0	0	0	6871
MAAC	4724	170	1660	0	6554	0	0	0	0	0	6554
MAIN	241	5169	0	90	5500	0	0	0	0	0	5500
Cmnwlth Edison	0	2460	0	90	2550	0	0	0	0	0	2550
East Missouri	90	974	0	0	1064	0	0	0	0	0	1064
S Cent Illinois	48	789	0	0	837	0	0	0	0	0	837
Wis-Upper Mich	103	946	0	0	1049	0	0	0	0	0	1049
MAPP	7203	5252	642	0	13097	0	465	436	0	901	13998
NPCC	1534	4389	5	316	6244	0	0	59	0	59	6303
New York	1090	2654	5	316	4065	0	0	0	0	0	4065
NEPOOL	444	1735	0	0	2179	0	0	59	0	59	2238
SERC	19571	2	7608	0	27181	0	0	0	0	0	27181
Florida	4563	0	1192	0	5755	0	0	0	0	0	5755
Southern	6183	0	2163	0	8346	0	0	0	0	0	8346
TVA	30	2	2401	0	2433	0	0	0	0	0	2433
VACAR	8795	0	1852	0	10647	0	0	0	0	0	10647
SPP	4263	4697	2079	0	11039	0	0	0	0	0	11039
Southeast	2114	98	1977	0	4189	0	0	0	0	0	4189
West Central	1426	2288	47	0	3761	0	0	0	0	0	3761
Northern	723	2311	55	0	3089	0	0	0	0	0	3089
WSCC	31415	9034[a]	11027	0	51476	0	0	0	1333	1333	52809
NW Pool	12720	3904	5674	0	22298	0	0	0	264	264	22562
Rocky Mt Area	4034	912	0	0	4946	0	0	0	0	0	4946
Ariz-N. Mex	2448	3722	1626	0	7796	0	0	0	0	0	7796
Calif-So. Nev	12213	496	3727	0	16436	0	0	0	1069	1069	17505
TOTAL(U.S.)	70052	47373	23873	2428	143726	0	465	495	1333	2293	146019
NERC-Canada											
MAPP	3851	0	130	0	3981	0	0	1139	0	1139	5120
NPCC	12010	5070	1408	6187	24675	0	0	93	0	93	24768
New Brunswick	389	770	0	0	1159	0	0	0	0	0	1159
Nova Scotia	715	107	0	0	822	0	0	0	0	0	822
Ontario	8537	4	1408	0	9949	0	0	0	0	0	9949
Quebec	2369	4189[b]	0	6187[c]	12745	0	0	93	0	93	12838
WSCC	5772	266[a]	3453	0	9491	47	0	0	0	47	9538
TOTAL(Canada)	21633	5336	4991	6187	38147	47	0	1232	0	1279	39426
NERC-Mexico											
WSCC	400	0	0	0	400	0	0	0	0	0	400
TOTAL(Mexico)	400	0	0	0	400	0	0	0	0	0	400
NERC-Total	92085	52709	28864	8615	182273	47	465	1727	1333	3572	185845

[a] Where appropriate, includes 287 kV and 360 kV lines.

[b] 315 kV lines.

[c] 735 kV lines.

Table 42
Planned Transmission Additions by Voltage (230 kV & Above) – Circuit Miles
(1989–1993)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	70	69	0	0	139	0	0	0	0	0	139
ERCOT	0	370	0	0	370	0	0	0	0	0	370
MAAC	392	0	98	0	490	0	0	0	0	0	490
MAIN	0	112	0	0	112	0	0	0	0	0	112
Cmnwlth Edison	0	43	0	0	43	0	0	0	0	0	43
East Missouri	0	9	0	0	9	0	0	0	0	0	9
S Cent Illinois	0	59	0	0	59	0	0	0	0	0	59
Wis-Upper Mich	0	1	0	0	1	0	0	0	0	0	1
MAPP	157	105	0	0	262	0	0	0	0	0	262
NPCC	16	169	0	0	185	0	0	133	0	133	318
New York	0	27	0	0	27	0	0	0	0	0	27
NEPOOL	16	142	0	0	158	0	0	133	0	133	291
SERC	1034	0	306	0	1340	0	0	0	0	0	1340
Florida	336	0	153	0	489	0	0	0	0	0	489
Southern	172	0	80	0	252	0	0	0	0	0	252
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	526	0	73	0	599	0	0	0	0	0	599
SPP	401	270	10	0	681	0	0	0	0	0	681
Southeast	362	0	10	0	372	0	0	0	0	0	372
West Central	39	270	0	0	309	0	0	0	0	0	309
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	973	1036[a]	1387	0	3396	0	0	0	0	0	3396
NW Pool	417	202	384	0	1003	0	0	0	0	0	1003
Rocky Mt Area	175	230	0	0	405	0	0	0	0	0	405
Ariz-N. Mex	253	435	59	0	747	0	0	0	0	0	747
Calif-So. Nev	128	169	944	0	1241	0	0	0	0	0	1241
TOTAL(U.S.)	3043	2131	1801	0	6975	0	0	133	0	133	7108
NERC-Canada											
MAPP	878	0	0	0	878	0	0	0	0	0	878
NPCC	262	526	737	5	1530	0	0	756	0	756	2286
New Brunswick	0	178	0	0	178	0	0	0	0	0	178
Nova Scotia	113	262	0	0	375	0	0	0	0	0	375
Ontario	109	0	737	0	846	0	0	0	0	0	846
Quebec	40	86[b]	0	5[c]	131	0	0	756	0	756	887
WSCC	320	0	0	0	320	0	0	0	0	0	320
TOTAL(Canada)	1460	526	737	5	2728	0	0	756	0	756	3484
NERC-Mexico											
WSCC	31	0	0	0	31	0	0	0	0	0	31
TOTAL(Mexico)	31	0	0	0	31	0	0	0	0	0	31
NERC-Total	4534	2657	2538	5	9734	0	0	889	0	889	10623

[a] Where appropriate, includes 287 kV and 360 kV lines.
[b] 315 kV lines.
[c] 735 kV lines.

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Table 43
Planned Transmission Additions by Voltage (230 kV & Above) – Circuit Miles
(1994–1998)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	8	15	116	0	139	0	0	0	0	0	139
ERCOT	0	705	0	0	705	0	0	0	0	0	705
MAAC	106	0	24	0	130	0	0	0	0	0	130
MAIN	0	84	0	0	84	0	0	0	0	0	84
Cmnwlth Edison	0	84	0	0	84	0	0	0	0	0	84
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	6	75	0	0	81	0	0	0	0	0	81
NPCC	25	126	0	0	151	0	0	0	0	0	151
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	25	126	0	0	151	0	0	0	0	0	151
SERC	902	0	236	0	1138	0	0	0	0	0	1138
Florida	138	0	44	0	182	0	0	0	0	0	182
Southern	197	0	55	0	252	0	0	0	0	0	252
TVA	0	0	36	0	36	0	0	0	0	0	36
VACAR	567	0	101	0	668	0	0	0	0	0	668
SPP	111	31	154	0	296	0	0	0	0	0	296
Southeast	111	0	154	0	265	0	0	0	0	0	265
West Central	0	31	0	0	31	0	0	0	0	0	31
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	768	399[a]	732	0	1899	0	0	0	455	455	2354
NW Pool	547	0	266	0	813	0	0	0	0	0	813
Rocky Mt Area	28	273	0	0	301	0	0	0	0	0	301
Ariz-N. Mex	66	124	1	0	191	0	0	0	240	240	431
Calif-So. Nev	127	2	465	0	594	0	0	0	215	215	809
TOTAL(U.S.)	1926	1435	1262	0	4623	0	0	0	455	455	5078
NERC-Canada											
MAPP	214	0	0	0	214	0	0	0	0	0	214
NPCC	935	320	288	1065	2608	0	0	103	0	103	2711
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	28	177	0	0	205	0	0	0	0	0	205
Ontario	863	0	288	0	1151	0	0	0	0	0	1151
Quebec	44	143[b]	0	1065[c]	1252	0	0	103	0	103	1355
WSCC	552	38	929	0	1519	0	0	0	0	0	1519
TOTAL(Canada)	1701	358	1217	1065	4341	0	0	103	0	103	4444
NERC-Mexico											
WSCC	68	0	0	0	68	0	0	0	0	0	68
TOTAL(Mexico)	68	0	0	0	68	0	0	0	0	0	68
NERC-Total	3695	1793	2479	1065	9032	0	0	103	455	558	9590

[a] Where appropriate, includes 287 kV and 360 kV lines.

[b] 315 kV lines.

[c] 735 kV lines.

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Table 44
Existing and Planned Transmission (230 kV & Above) Systems – Circuit Miles
(December 31, 1998)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	1179	11873	968	2022	16042	0	0	0	0	0	16042
ERCOT	0	7946	0	0	7946	0	0	0	0	0	7946
MAAC	5222	170	1782	0	7174	0	0	0	0	0	7174
MAIN	241	5365	0	90	5696	0	0	0	0	0	5696
Cmnwlth Edison	0	2587	0	90	2677	0	0	0	0	0	2677
East Missouri	90	983	0	0	1073	0	0	0	0	0	1073
S Cent Illinois	48	848	0	0	896	0	0	0	0	0	896
Wis-Upper Mich	103	947	0	0	1050	0	0	0	0	0	1050
MAPP	7366	5432	642	0	13440	0	465	436	0	901	14341
NPCC	1575	4684	5	316	6580	0	0	192	0	192	6772
New York	1090	2681	5	316	4092	0	0	0	0	0	4092
NEPOOL	485	2003	0	0	2488	0	0	192	0	192	2680
SERC	21507	2	8150	0	29659	0	0	0	0	0	29659
Florida	5037	0	1389	0	6426	0	0	0	0	0	6426
Southern	6552	0	2298	0	8850	0	0	0	0	0	8850
TVA	30	2	2437	0	2469	0	0	0	0	0	2469
VACAR	9888	0	2026	0	11914	0	0	0	0	0	11914
SPP	4775	4998	2243	0	12016	0	0	0	0	0	12016
Southeast	2587	98	2141	0	4826	0	0	0	0	0	4826
West Central	1465	2589	47	0	4101	0	0	0	0	0	4101
Northern	723	2311	55	0	3089	0	0	0	0	0	3089
WSCC	33156	10469[a]	13146	0	56771	0	0	0	1788	1788	58559
NW Pool	13684	4106	6324	0	24114	0	0	0	264	264	24378
Rocky Mt Area	4237	1415	0	0	5652	0	0	0	0	0	5652
Ariz-N. Mex	2767	4281	1686	0	8734	0	0	0	240	240	8974
Calif-So. Nev	12468	667	5136	0	18271	0	0	0	1284	1284	19555
TOTAL(U.S.)	75021	50939	26936	2428	155324	0	465	628	1788	2881	158205
NERC-Canada											
MAPP	4943	0	130	0	5073	0	0	1139	0	1139	6212
NPCC	13207	5916	2433	7257	28813	0	0	952	0	952	29765
New Brunswick	389	948	0	0	1337	0	0	0	0	0	1337
Nova Scotia	856	546	0	0	1402	0	0	0	0	0	1402
Ontario	9509	4	2433	0	11946	0	0	0	0	0	11946
Quebec	2453	4418[b]	0	7257[c]	14128	0	0	952	0	952	15080
WSCC	6644	304	4382	0	11330	47	0	0	0	47	11377
TOTAL(Canada)	24794	6220	6945	7257	45216	47	0	2091	0	2138	47354
NERC-Mexico											
WSCC	499	0	0	0	499	0	0	0	0	0	499
TOTAL(Mexico)	499	0	0	0	499	0	0	0	0	0	499
NERC-Total	100314	57159	33881	9685	201039	47	465	2719	1788	5019	206058

[a] Where appropriate, includes 287 kV and 360 kV lines.
[b] 315 kV lines.
[c] 735 kV lines.

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Table 45
Existing and Planned Transmission (230 kV & Above) Systems – Circuit Miles
(1989–1998)

	EXISTING 12/31/88	ADDITIONS 1989-93	TOTAL 12/31/93	ADDITIONS 1994-98	TOTAL 12/31/98
NERC-U.S.					
ECAR	15764	139	15903	139	16042
ERCOT	6871	370	7241	705	7946
MAAC	6554	490	7044	130	7174
MAIN	5500	112	5612	84	5696
Cmnwlth Edison	2550	43	2593	84	2677
East Missouri	1064	9	1073	0	1073
S Cent Illinois	837	59	896	0	896
Wis-Upper Mich	1049	1	1050	0	1050
MAPP	13998	262	14260	81	14341
NPCC	6303	318	6621	151	6772
New York	4065	27	4092	0	4092
NEPOOL	2238	291	2529	151	2680
SERC	27181	1340	28521	1138	29659
Florida	5755	489	6244	182	6426
Southern	8346	252	8598	252	8850
TVA	2433	0	2433	36	2469
VACAR	10647	599	11246	668	11914
SPP	11039	681	11720	296	12016
Southeast	4189	372	4561	265	4826
West Central	3761	309	4070	31	4101
Northern	3089	0	3089	0	3089
WSCC	52809	3396	56205	2354	58559
NW Pool	22562	1003	23565	813	24378
Rocky Mt Area	4946	405	5351	301	5652
Ariz-N. Mex	7796	747	8543	431	8974
Calif-So. Nev	17505	1241	18746	809	19555
TOTAL(U.S.)	146019	7108	153127	5078	158205
NERC-Canada					
MAPP	5120	878	5998	214	6212
NPCC	24768	2286	27054	2711	29765
New Brunswick	1159	178	1337	0	1337
Nova Scotia	822	375	1197	205	1402
Ontario	9949	846	10795	1151	11946
Quebec	12838	887	13725	1355	15080
WSCC	9538	320	9858	1519	11377
TOTAL(Canada)	39426	3484	42910	4444	47354
NERC-Mexico					
WSCC	400	31	431	68	499
TOTAL(Mexico)	400	31	431	68	499
NERC-Total	185845	10623	196468	9590	206058

APPENDIXES

APPENDIXES

A. Installed Generating Capacity . . . . A

B. Electrical Energy Production . . . . B

C. Fossil Fuel Requirements for Coal, Oil, and Natural Gas C

D. Generating Unit Additions . . . . D

E. Nuclear Generating Unit Additions . . . . E

F. Coal-Fired Generating Unit Additions . . . . F

G. Hydro (Conventional) Generating Unit Additions . . . . G

H. Pumped Storage Generating Unit Additions . . . . H

I. Oil-Fired Generating Unit Additions I

J. Gas-Fired Generating Unit Additions . . . . J

K. Other (Utility) Generating Unit Additions . . . . K

L. Non-Utility Generator (NUG) Additions L

M. Jointly-Owned Generating Unit Additions . . . . M

N. Generating Unit Retirements . . . . N

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Actual and Projected Coal-Fired Generating Capacity – Summer – MW

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	79126	79157	80746	82507	82418	82339	82338	82560	82840	83220	83309
ERCOT	13939	13971	14006	14006	14504	14504	15254	16004	16204	18097	18497
MAAC	17153	17159	17135	17017	17657	17657	17657	17657	17657	17657	17657
MAIN	27300	27369	27180	27206	27216	27248	27250	27298	27141	26954	26410
Cmnwlth Edison	6940	6940	6940	6940	6940	6940	6940	6940	6840	6653	6103
East Missouri	5589	5589	5589	5589	5589	5589	5589	5637	5637	5637	5637
S Cent Illinois	7850	7854	7854	7854	7854	7854	7854	7854	7797	7797	7797
Wis-Upper Mich	6921	6986	6797	6823	6833	6865	6867	6867	6867	6867	6873
MAPP	20118	19879	19900	19933	19974	20205	20205	20355	20355	20552	20952
NPCC	7565	7589	7589	7589	7589	7589	7589	7589	7589	7589	7589
New York	4814	4829	4829	4829	4829	4829	4829	4829	4829	4829	4829
NEPOOL	2751	2760	2760	2760	2760	2760	2760	2760	2760	2760	2760
SERC	67744	69672	69875	70864	71242	71242	71198	71198	71198	71371	71496
Florida	8410	8410	8430	8430	8430	8430	8430	8430	8430	8603	8603
Southern	23256	24828	24767	25434	25434	25434	25390	25390	25390	25390	25515
TVA	15833	15833	15833	15833	15833	15833	15833	15833	15833	15833	15833
VACAR	20245	20601	20845	21167	21545	21545	21545	21545	21545	21545	21545
SPP	26538	26567	26647	26660	26660	26904	26919	26919	26919	26999	27069
Southeast	6119	6116	6196	6196	6196	6196	6211	6211	6211	6211	6211
West Central	9933	9950	9950	9950	9950	10194	10194	10194	10194	10194	10194
Northern	10486	10501	10501	10514	10514	10514	10514	10514	10514	10594	10664
WSCC[a]	28972	29092	29470	29713	29797	29797	29797	29797	29865	29990	30475
NW Pool	11133	11127	11147	11145	11145	11145	11145	11145	11145	11145	11145
Rocky Mt Area	5607	5732	5732	5832	5831	5832	5832	5832	5832	5832	6317
Ariz-N. Mex	6838	6993	7549	7549	7634	7633	7633	7633	7701	7701	7701
Calif-So. Nev	5394	5240	5044	5187	5187	5187	5187	5187	5187	5312	5312
TOTAL(U.S.)	288455	290455	292548	295495	297057	297485	298207	299377	299768	302429	303454
NERC-Canada											
MAPP	1896	1941	1941	1941	2160	2160	2160	2160	2436	2436	2436
NPCC	11308	11536	11536	11536	11686	11698	12298	12468	12618	12618	13218
New Brunswick	304	304	304	304	304	304	754	924	924	924	1374
Nova Scotia	1050	1050	1050	1050	1200	1200	1350	1350	1500	1500	1650
Ontario	9954	10182	10182	10182	10182	10194	10194	10194	10194	10194	10194
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	4533	4533	4919	5285	5671	5671	5671	5671	5671	6031	6031
TOTAL(Canada)	17737	18010	18396	18762	19517	19529	20129	20299	20725	21085	21685
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	306192	308465	310944	314257	316574	317014	318336	319676	320493	323514	325139

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[a] Because of subregional peak demand diversities, the sum of the individual subregional capacities at the time of the respective subregional peak demands may not equal the total WSCC-U.S. capacity.

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Actual and Projected Nuclear Generating Capacity – Summer – MW

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	7685	7685	7685	7685	7685	7731	7731	7731	7731	7731	7731
ERCOT	0	2500	3650	3650	4800	4800	4800	4800	4800	4800	4800
MAAC	11530	11572	12647	12647	12647	12647	12647	12647	12647	12647	12647
MAIN	14844	14844	14844	14844	14844	14844	14844	14844	14844	14844	14844
Cmnwlth Edison	11294	11294	11294	11294	11294	11294	11294	11294	11294	11294	11294
East Missouri	1118	1118	1118	1118	1118	1118	1118	1118	1118	1118	1118
S Cent Illinois	933	933	933	933	933	933	933	933	933	933	933
Wis-Upper Mich	1499	1499	1499	1499	1499	1499	1499	1499	1499	1499	1499
MAPP	3687	3696	3696	3696	3696	3696	3696	3696	3696	3696	3696
NPCC	9511	10133	12092	12092	12092	12092	12092	12092	12092	12092	12092
New York	4774	4774	5583	5583	5583	5583	5583	5583	5583	5583	5583
NEPOOL	4737	5359	6509	6509	6509	6509	6509	6509	6509	6509	6509
SERC	28006	29109	29167	29167	30337	30337	30337	30337	31507	31507	32719
Florida	3696	3696	3696	3696	3696	3696	3696	3696	3696	3696	3696
Southern	4383	5486	5486	5486	5486	5486	5486	5486	5486	5486	5486
TVA	5491	5491	5491	5491	6661	6661	6661	6661	7831	7831	9043
VACAR	14436	14436	14494	14494	14494	14494	14494	14494	14494	14494	14494
SPP	5797	5801	5801	5826	5826	5873	5873	5873	5873	5873	5873
Southeast	4734	4734	4734	4734	4734	4781	4781	4781	4781	4781	4781
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	1063	1067	1067	1092	1092	1092	1092	1092	1092	1092	1092
WSCC	11853	11861	11631	11631	11679	11679	11679	11679	11679	11679	11679
NW Pool	2199	2199	2199	2199	2247	2247	2247	2247	2247	2247	2247
Rocky Mt Area	230	230	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	2777	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781
Calif-So. Nev	6647	6651	6651	6651	6651	6651	6651	6651	6651	6651	6651
TOTAL(U.S.)	92913	97201	101213	101238	103606	103699	103699	103699	104869	104869	106081
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	11667	11702	13487	14401	15474	15474	15474	15474	15474	15474	15474
New Brunswick	635	635	635	635	635	635	635	635	635	635	635
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	10369	10402	12187	13091	14164	14164	14164	14164	14164	14164	14164
Quebec	663	665	665	675	675	675	675	675	675	675	675
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	11667	11702	13487	14401	15474	15474	15474	15474	15474	15474	15474
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	104580	108903	114700	115639	119080	119173	119173	119173	120343	120343	121555

Actual and Projected Hydro[a] Generating Capacity – Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988[b]	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	685	685	690	690	690	690	690	690	690	690	690
ERCOT	333	333	333	333	333	333	333	333	333	333	333
MAAC	1048	1048	048	1048	1048	1048	1048	1048	1048	1048	1048
MAIN	578	574	574	574	574	577	577	577	577	577	577
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	331	331	331	331	331	331	331	331	331	331	331
S Cent Illinois	2	2	2	2	2	2	2	2	2	2	2
Wis-Upper Mich	245	241	241	241	241	244	244	244	244	244	244
MAPP	3004	2967	2907	2703	2703	2703	2703	2703	2712	2712	2712
NPCC	5369	5376	5391	5407	5421	5463	5463	5463	5793	5793	5793
New York	3987	3987	3999	3990	4004	4046	4046	4046	4376	4376	4376
NEPOOL[c]	1382	1389	1392	1417	1417	1417	1417	1417	1417	1417	1417
SERC	11200	11270	11270	11270	11270	11270	11270	11270	11270	11270	11270
Florida	43	43	43	43	43	43	43	43	43	43	43
Southern	3804	3872	3872	3872	3872	3872	3872	3872	3872	3872	3872
TVA	4674	4674	4674	4674	4674	4674	4674	4674	4674	4674	4674
VACAR	2679	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681
SPP	2445	2487	2487	2603	2603	2603	2613	2613	2613	2613	2613
Southeast	70	87	87	87	87	87	97	97	97	97	97
West Central	2359	2384	2384	2500	2500	2500	2500	2500	2500	2500	2500
Northern	16	16	16	16	16	16	16	16	16	16	16
WSCC[d]	46192	41694	41971	42349	42462	42776	42857	42918	41810	41914	41796
NW Pool	32820	28995	28997	28997	29014	29163	28238	28286	28286	28266	28233
Rocky Mt Area	2267	2391	2425	2452	2470	2474	2474	2474	2474	2474	2474
Ariz-N. Mex	733	860	882	823	930	990	990	990	990	990	990
Calif-So. Nev	10076	9716	9935	9788	9975	10103	10122	10133	10158	10262	10271
TOTAL(U.S.)	70854	66434	66671	66977	67104	67463	67554	67615	66846	66950	66832
NERC-Canada											
MAPP	4415	4415	4415	5135	5495	5615	5707	5707	5707	5707	5707
NPCC	29661	29803	30129	30171	31844	32178	32198	32500	35336	35789	36413
New Brunswick	878	878	878	878	878	878	878	878	878	878	878
Nova Scotia	383	383	383	383	383	383	383	383	383	383	383
Ontario	6166	6170	6170	6166	6166	6171	6181	6429	6554	6683	6683
Quebec	22234	22372	22698	22744	24417	24746	24756	24810	27521	27845	28469
WSCC	11159	11170	11170	11170	11170	11170	11170	11170	11170	11170	11250
TOTAL(Canada)	45235	45388	45714	46476	48509	48963	49075	49377	52213	52666	53370
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	116089	111822	112385	113453	115613	116426	116629	116992	119059	119616	120202

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.
[b] Capacity for actual year can be greater than capacity for forecast years if median or average hydro conditions occurred.
[c] Median hydro.
[d] See page 70, foonote a.

Actual and Projected Pumped Storage Generating Capacity – Summer – MW

(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	3582	3582	3582	3582	3582	3582	3582	3582	3582	3582	3582
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	1280	1280	1280	1280	1280	1280	1280	1280	1280	1280	1280
MAIN	300	300	300	300	300	300	300	300	300	300	300
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	300	300	300	300	300	300	300	300	300	300	300
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	2594	2676	2676	2676	2676	2676	2676	2676	2676	2676	2676
New York	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
NEPOOL	1594	1676	1676	1676	1676	1676	1676	1676	1676	1676	1676
SERC	4412	4416	4416	4826	5359	5891	5891	5891	6849	6849	6849
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	498	502	502	762	762	762	762	762	1720	1720	1720
TVA	1532	1532	1532	1532	1532	1532	1532	1532	1532	1532	1532
VACAR	2382	2382	2382	2532	3065	3597	3597	3597	3597	3597	3597
SPP	260	260	260	260	260	260	260	260	260	260	260
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	260	260	260	260	260	260	260	260	260	260	260
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC[a]	3616	3498	3593	3697	3706	3705	3764	3782	3681	3679	3719
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	266	266	368	368	368	368	432	432	432	432	432
Ariz-N. Mex	137	137	137	137	137	137	137	151	151	151	151
Calif-So. Nev	3213	3095	3088	3090	3096	3095	3094	3090	3098	3096	3136
TOTAL(U.S.)	16044	16012	16107	16621	17163	17694	17753	17771	18628	18626	18666
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	16044	16012	16107	16621	17163	17694	17753	17771	18628	18626	18666

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[a] See page 70, footnote a.

APPENDIX A

Actual and Projected Geothermal Generating Capacity – Summer – MW

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	1848	1848	1854	1854	1854	1854	1854	1907	1907	1907	1907
NW Pool	24	24	30	30	30	30	30	30	30	30	30
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	1824	1824	1824	1824	1824	1824	1824	1877	1877	1877	1877
TOTAL(U.S.)	1848	1848	1854	1854	1854	1854	1854	1907	1907	1907	1907
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	575	575	575	575	627	679	679	679	679	679	679
TOTAL(Mexico)	575	575	575	575	627	679	679	679	679	679	679
NERC-Total	2423	2423	2429	2429	2481	2533	2533	2586	2586	2586	2586

Actual and Projected Oil- and Gas-Fired Generating Capacity[a] – Summer – MW

(1989–1998 Forecast)

North American **E**lectric **R**eliability **C**ouncil	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	6010	6010	5785	5712	5847	6248	6768	6908	7458	8018	8277
ERCOT	32409	32365	32755	32719	32719	32927	32719	32754	33166	33252	33268
MAAC	17235	17370	17694	17901	17998	18311	18682	19007	19546	20169	20603
MAIN	6311	6311	6311	6305	6356	6580	6730	6952	7102	7102	7213
Cmnwlth Edison	3738	3738	3738	3738	3738	3738	3738	3738	3738	3738	3738
East Missouri	852	852	852	852	852	852	852	852	852	852	852
S Cent Illinois	794	794	794	794	830	904	904	904	904	904	904
Wis-Upper Mich	927	927	927	921	936	1086	1236	1458	1608	1608	1719
MAPP	3691	3784	3882	3965	4035	4073	4115	4212	4290	4369	4449
NPCC	27442	27529	27740	27965	27793	27490	27377	27377	27377	27358	27318
New York	16975	16975	17186	17186	17186	17186	17186	17186	17186	17186	17186
NEPOOL	10467	10554	10554	10779	10607	10304	10191	10191	10191	10172	10132
SERC	26553	26720	27303	27549	27969	29228	31401	33159	34288	35434	36832
Florida	17501	17524	17778	18022	18237	19320	20118	20868	21779	21854	22016
Southern	2523	2523	2523	2523	2523	2603	3882	4890	5000	5963	7091
TVA	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066
VACAR	4463	4607	4936	4938	5143	5239	5335	5335	5443	5551	5659
SPP	30578	30509	30810	30938	30785	30622	30787	31305	31637	31763	32057
Southeast	16632	16442	16728	16888	16715	16690	16693	16966	16923	16868	16556
West Central	10264	10224	10244	10244	10244	10035	10197	10271	10271	10271	10673
Northern	3682	3843	3838	3806	3826	3897	3897	4068	4443	4624	4828
WSCC[b]	30431	30709	30764	30930	31014	31018	31348	31690	32634	33363	33363
NW Pool	2135	2135	2135	2135	2135	2135	2195	2195	2195	2195	2195
Rocky Mt Area	909	909	901	893	893	893	893	885	885	939	939
Ariz-N. Mex	4258	4527	4429	4600	4516	4516	4516	4516	4591	4666	4666
Calif-So. Nev	23138	23147	23308	23320	23488	23492	23762	24112	24972	25572	25572
TOTAL(U.S.)	180660	181307	183044	183984	184516	186497	189927	193364	197498	200828	203380
NERC-Canada											
MAPP	239	345	345	391	391	437	437	483	483	483	483
NPCC	5932	6063	6094	6094	5759	5883	6255	6255	6255	6255	6255
New Brunswick	1372	1422	1422	1422	1087	1087	1087	1087	1087	1087	1087
Nova Scotia	556	556	556	556	556	556	556	556	556	556	556
Ontario	3050	3050	3050	3050	3050	3050	3050	3050	3050	3050	3050
Quebec	954	1035	1066	1066	1066	1190	1562	1562	1562	1562	1562
WSCC	2256	2256	2326	2234	2234	2234	2229	2229	2301	2288	2375
TOTAL(Canada)	8427	8664	8765	8719	8384	8554	8921	8967	9039	9026	9113
NERC-Mexico											
WSCC	455	455	605	755	755	755	905	905	1055	1055	1055
TOTAL(Mexico)	455	455	605	755	755	755	905	905	1055	1055	1055
NERC-Total	189542	190426	192414	193458	193655	195806	199753	203236	207592	210909	213548

[a] Includes oil-fired, gas-fired, and dual fuel(oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.

[b] See page 70, footnote a.

Actual and Projected Oil-Fired Generating Capacity[a] – Summer – MW

(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	4343	4343	4343	4190	4325	4660	5040	5040	5302	5662	5606
ERCOT	40	40	40	40	40	40	39	39	39	39	39
MAAC	12251	12282	12427	12574	12671	12684	12930	12930	13144	13342	13426
MAIN	4477	4477	4477	4477	4477	4477	4477	4477	4477	4477	4477
Cmnwlth Edison	3136	3136	3136	3136	3136	3136	3136	3136	3136	3136	3136
East Missouri	538	538	538	538	538	538	538	538	538	538	538
S Cent Illinois	485	485	485	485	485	485	485	485	485	485	485
Wis-Upper Mich	318	318	318	318	318	318	318	318	318	318	318
MAPP	2919	2983	3113	3196	3266	3304	3346	3443	3521	3600	3600
NPCC	17345	17437	17677	17677	17505	17202	17089	17089	17089	17070	17030
New York	7944	7944	8184	8184	8184	8184	8184	8184	8184	8184	8184
NEPOOL	9401	9493	9493	9493	9321	9018	8905	8905	8905	8886	8846
SERC	16008	15970	16148	16367	16582	16721	17058	17133	17192	17267	17407
Florida	10207	10207	10385	10604	10819	10958	11295	11370	11445	11520	11660
Southern	2001	1963	1963	1963	1963	1963	1963	1963	1947	1947	1947
TVA	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464
VACAR	2336	2336	2336	2336	2336	2336	2336	2336	2336	2336	2336
SPP	1511	1492	1539	1551	1551	1551	1551	1371	1371	1371	1371
Southeast	258	258	290	290	290	290	290	290	290	290	290
West Central	129	89	89	89	89	89	89	89	89	89	89
Northern	1124	1145	1160	1172	1172	1172	1172	992	992	992	992
WSCC[b]	1180	1189	1189	1180	1180	1180	1180	1180	1189	1189	1189
NW Pool	279	279	279	279	279	279	279	279	279	279	279
Rocky Mt Area	412	412	412	412	412	412	412	412	412	412	412
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	489	498	498	498	498	498	498	498	498	498	498
TOTAL(U.S.)	60074	60213	60953	61252	61597	61819	62710	62702	63324	64017	64145
NERC-Canada											
MAPP	22	3	3	3	3	3	3	3	3	3	3
NPCC	4990	5040	5040	5040	4705	4705	4705	4705	4705	4705	4705
New Brunswick	1372	1422	1422	1422	1087	1087	1087	1087	1087	1087	1087
Nova Scotia	556	556	556	556	556	556	556	556	556	556	556
Ontario	2462	2462	2462	2462	2462	2462	2462	2462	2462	2462	2462
Quebec	600	600	600	600	600	600	600	600	600	600	600
WSCC	99	99	99	99	99	99	94	94	94	94	94
TOTAL(Canada)	5111	5142	5142	5142	4807	4807	4802	4802	4802	4802	4802
NERC-Mexico											
WSCC	455	455	605	755	755	755	905	905	1055	1055	1055
TOTAL(Mexico)	455	455	605	755	755	755	905	905	1055	1055	1055
NERC-Total	65640	65810	66700	67149	67159	67381	68417	68409	69181	69874	70002

[a] Includes oil-fired steam, combustion turbine (and diesel), and combined cycle units. Excludes dual fuel (oil/gas)-fired capacity.

[b] See page 70, footnote a.

North American Electric Reliability Council

Actual and Projected Oil–Steam Generating Capacity – Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	2716	2716	2716	2716	2716	2915	3165	3165	3165	3525	3525
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	7801	7818	7846	7881	7881	7881	7881	7881	7881	7881	7666
MAIN	3305	3305	3305	3305	3305	3305	3305	3305	3305	3305	3305
Cmnwlth Edison	2698	2698	2698	2698	2698	2698	2698	2698	2698	2698	2698
East Missouri	196	196	196	196	196	196	196	196	196	196	196
S Cent Illinois	411	411	411	411	411	411	411	411	411	411	411
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	85	85	85	85	85	85	85	85	85	85	85
NPCC	14192	14223	14223	14223	14223	13920	13807	13807	13807	13807	13807
New York	6109	6109	6109	6109	6109	6109	6109	6109	6109	6109	6109
NEPOOL	8083	8114	8114	8114	8114	7811	7698	7698	7698	7698	7698
SERC	9622	9582	9582	9656	9787	9851	10113	10113	10113	10113	10113
Florida	7705	7705	7705	7779	7910	7974	8236	8236	8236	8236	8236
Southern	896	856	856	856	856	856	856	856	856	856	856
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	1021	1021	1021	1021	1021	1021	1021	1021	1021	1021	1021
SPP	50	50	50	50	50	50	50	50	50	50	50
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	50	50	50	50	50	50	50	50	50	50	50
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	86	86	86	86	86	86	86	86	86	86	86
NW Pool	86	86	86	86	86	86	86	86	86	86	86
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	37857	37865	37893	38002	38133	38093	38492	38492	38492	38852	38637
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4512	4537	4537	4537	4202	4202	4202	4202	4202	4202	4202
New Brunswick	1346	1371	1371	1371	1036	1036	1036	1036	1036	1036	1036
Nova Scotia	334	334	334	334	334	334	334	334	334	334	334
Ontario	2232	2232	2232	2232	2232	2232	2232	2232	2232	2232	2232
Quebec	600	600	600	600	600	600	600	600	600	600	600
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	4512	4537	4537	4537	4202	4202	4202	4202	4202	4202	4202
NERC-Mexico											
WSCC	286	286	436	586	586	586	736	736	886	886	886
TOTAL(Mexico)	286	286	436	586	586	586	736	736	886	886	886
NERC-Total	42655	42688	42866	43125	42921	42881	43430	43430	43580	43940	43725

Actual and Projected Oil-Combustion Turbine Generating Capacity[a]
Summer - MW
(1989-1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1627	1627	1627	1474	1474	1444	1574	1574	1704	1704	1648
ERCOT	40	40	40	40	40	40	39	39	39	39	39
MAAC	4336	4350	4467	4579	4676	4689	4935	4935	5149	5347	5646
MAIN	1172	1172	1172	1172	1172	1172	1172	1172	1172	1172	1172
Cmnwlth Edison	438	438	438	438	438	438	438	438	438	438	438
East Missouri	342	342	342	342	342	342	342	342	342	342	342
S Cent Illinois	74	74	74	74	74	74	74	74	74	74	74
Wis-Upper Mich	318	318	318	318	318	318	318	318	318	318	318
MAPP	2783	2847	2977	3060	3130	3168	3210	3307	3385	3464	3464
NPCC	2988	3049	3289	3289	3117	3117	3117	3117	3117	3098	3058
New York	1835	1835	2075	2075	2075	2075	2075	2075	2075	2075	2075
NEPOOL	1153	1214	1214	1214	1042	1042	1042	1042	1042	1023	983
SERC	6348	6350	6528	6673	6757	6832	6907	6982	7041	7116	7256
Florida	2464	2464	2642	2787	2871	2946	3021	3096	3171	3246	3386
Southern	1105	1107	1107	1107	1107	1107	1107	1107	1091	1091	1091
TVA	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464
VACAR	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315
SPP	1461	1442	1489	1501	1501	1501	1501	1321	1321	1321	1321
Southeast	258	258	290	290	290	290	290	290	290	290	290
West Central	79	39	39	39	39	39	39	39	39	39	39
Northern	1124	1145	1160	1172	1172	1172	1172	992	992	992	992
WSCC[b]	1094	1103	1103	1094	1094	1094	1094	1094	1103	1103	1103
NW Pool	193	193	193	193	193	193	193	193	193	193	193
Rocky Mt Area	412	412	412	412	412	412	412	412	412	412	412
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	489	498	498	498	498	498	498	498	498	498	498
TOTAL(U.S.)	21849	21980	22692	22882	22961	23057	23549	23541	24031	24364	24707
NERC-Canada											
MAPP	22	3	3	3	3	3	3	3	3	3	3
NPCC	478	503	503	503	503	503	503	503	503	503	503
New Brunswick	26	51	51	51	51	51	51	51	51	51	51
Nova Scotia	222	222	222	222	222	222	222	222	222	222	222
Ontario	230	230	230	230	230	230	230	230	230	230	230
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	99	99	99	99	99	99	94	94	94	94	94
TOTAL(Canada)	599	605	605	605	605	605	600	600	600	600	600
NERC-Mexico											
WSCC	169	169	169	169	169	169	169	169	169	169	169
TOTAL(Mexico)	169	169	169	169	169	169	169	169	169	169	169
NERC-Total	22617	22754	23466	23656	23735	23831	24318	24310	24800	25133	25476

[a] Includes diesel units.

[b] See page 70, footnote a.

North American
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Actual and Projected Oil–Combined Cycle Generating Capacity
Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	135	301	301	301	433	433	433
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	114	114	114	114	114	114	114	114	114	114	114
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	51	51	51	51	51	51	51	51	51	51	51
NPCC	165	165	165	165	165	165	165	165	165	165	165
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	165	165	165	165	165	165	165	165	165	165	165
SERC	38	38	38	38	38	38	38	38	38	38	38
Florida	38	38	38	38	38	38	38	38	38	38	38
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	368	368	368	368	503	669	669	669	801	801	801
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	368	368	368	368	503	669	669	669	801	801	801

Actual and Projected Gas-Fired Generating Capacity[a] – Summer – MW

(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1667	1667	1442	1522	1522	1588	1728	1868	2156	2356	2671
ERCOT	25445	25442	25442	25406	25406	25614	25407	25442	25854	25933	25993
MAAC	4984	5088	5267	5327	5327	5627	5752	6077	6402	6827	7177
MAIN	303	303	303	303	339	413	413	413	413	413	413
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	37	37	37	37	37	37	37	37	37	37	37
S Cent Illinois	30	30	30	30	66	140	140	140	140	140	140
Wis-Upper Mich	236	236	236	236	236	236	236	236	236	236	236
MAPP	158	180	180	180	180	180	180	180	180	180	260
NPCC	45	45	45	270	270	270	270	270	270	270	270
New York	45	45	45	45	45	45	45	45	45	45	45
NEPOOL	0	0	0	225	225	225	225	225	225	225	225
SERC	7664	7725	7801	7826	7826	8850	9455	10130	10966	11046	11188
Florida	7294	7317	7393	7418	7418	8362	8823	9498	10334	10334	10356
Southern	345	383	383	383	383	463	607	607	607	687	807
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	25	25	25	25	25	25	25	25	25	25	25
SPP	11196	11307	11581	11762	11748	11610	11792	11993	12073	12181	12343
Southeast	2040	2050	2304	2553	2519	2519	2539	2539	2486	2486	2486
West Central	8541	8541	8561	8561	8561	8352	8514	8588	8588	8588	8750
Northern	615	716	716	648	668	739	739	866	999	1107	1107
WSCC	388	388	469	473	473	473	473	473	473	527	527
NW Pool	12	12	12	12	12	12	12	12	12	12	12
Rocky Mt Area	16	16	8	0	0	0	0	0	0	54	54
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	360	360	449	461	461	461	461	461	461	461	461
TOTAL(U.S.)	51850	52145	52530	53069	53091	54625	55470	56846	58787	59733	60842
NERC-Canada											
MAPP	217	342	342	388	388	434	434	480	480	480	480
NPCC	942	1023	1054	1054	1054	1178	1550	1550	1550	1550	1550
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	588	588	588	588	588	588	588	588	588	588	588
Quebec	354	435	466	466	466	590	962	962	962	962	962
WSCC	2157	2157	2111	2019	2019	2019	2019	2019	2091	2078	2165
TOTAL(Canada)	3316	3522	3507	3461	3461	3631	4003	4049	4121	4108	4195
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	55166	55667	56037	56530	56552	58256	59473	60895	62908	63841	65037

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[a] Includes gas-fired steam, combustion turbine (and diesel), and combined cycle units. Excludes dual fuel (oil/gas)-fired capacity.

**North American
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Acutal and Projected Gas-Steam Generating Capacity - Summer - MW
(1989-1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	261	261	26	26	26	26	26	26	26	26	26
ERCOT	24334	24334	24334	24298	24298	24298	24023	23850	23850	23649	23613
MAAC	2121	2121	2121	2121	2121	2121	2121	2121	2121	2121	2121
MAIN	54	54	54	54	54	54	54	54	54	54	54
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	54	54	54	54	54	54	54	54	54	54	54
MAPP	130	152	152	152	152	152	152	152	152	152	152
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	[illegible]	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	5478	5507	5507	5507	5507	5995	5995	5995	5943	5943	5943
Florida	5240	5233	5233	5233	5233	5721	5721	5721	5669	5669	5669
Southern	238	274	274	274	274	274	274	274	274	274	274
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	9569	9609	9863	10044	10010	9766	9948	10022	10090	10198	10360
Southeast	1887	1897	2151	2400	2366	2366	2386	2386	2341	2341	2341
West Central	7380	7380	7380	7380	7380	7136	7298	7372	7372	7372	7534
Northern	302	332	332	264	264	264	264	264	377	485	485
WSCC	374	374	455	447	447	447	447	447	447	447	447
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	16	16	8	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	358	358	447	447	447	447	447	447	447	447	447
TOTAL(U.S.)	42321	42412	42512	42649	42615	42859	42766	42667	42683	42590	42716
NERC-Canada											
MAPP	95	220	220	220	220	220	220	220	220	220	220
NPCC	588	588	588	588	588	588	588	588	588	588	588
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	588	588	588	588	588	588	588	588	588	588	588
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	1866	1866	1866	1788	1788	1788	1788	1788	1788	1788	1788
TOTAL(Canada)	2549	2674	2674	2596	2596	2596	2596	2596	2596	2596	2596
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	44870	45086	45186	45245	45211	45455	45362	45263	45279	45186	45312

Actual and Projected Gas-Combustion Turbine Generating Capacity[a]
Summer - MW
(1989-1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1384	1384	1394	1474	1474	1540	1680	1820	2108	2308	2623
ERCOT	521	521	521	521	521	521	589	589	611	679	742
MAAC	2645	2749	2928	2988	2988	3288	3288	3488	3688	4013	4138
MAIN	249	249	249	249	285	249	249	249	249	249	249
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	37	37	37	37	37	37	37	37	37	37	37
S Cent Illinois	30	30	30	30	66	30	30	30	30	30	30
Wis-Upper Mich	182	182	182	182	182	182	182	182	182	182	182
MAPP	15	15	15	15	15	15	15	15	15	15	15
NPCC	45	45	45	45	45	45	45	45	45	45	45
New York	45	45	45	45	45	45	45	45	45	45	45
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	1674	1676	1752	1777	1777	1793	1869	2159	2279	2279	2421
Florida	1542	1542	1618	1643	1643	1659	1735	2025	2145	2145	2167
Southern	107	109	109	109	109	109	109	109	109	109	229
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	25	25	25	25	25	25	25	25	25	25	25
SPP	729	800	820	820	757	863	863	990	920	920	920
Southeast	8	8	8	8	8	8	8	8	0	0	0
West Central	408	408	428	428	428	463	463	463	463	463	463
Northern	313	384	384	384	321	392	392	519	457	457	457
WSCC	14	14	14	26	26	26	26	26	26	80	80
NW Pool	12	12	12	12	12	12	12	12	12	12	12
Rocky Mt Area	0	0	0	0	0	0	0	0	0	54	54
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	2	2	2	14	14	14	14	14	14	14	14
TOTAL(U.S.)	7276	7453	7738	7915	7888	8340	8624	9381	9941	10588	11233
NERC-Canada											
MAPP	122	122	122	168	168	214	214	260	260	260	260
NPCC	354	435	466	466	466	590	962	962	962	962	962
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	354	435	466	466	466	590	962	962	962	962	962
WSCC	291	291	245	231	231	231	231	231	303	290	377
TOTAL(Canada)	767	848	833	865	865	1035	1407	1453	1525	1512	1599
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	8043	8301	8571	8780	8753	9375	10031	10834	11466	12100	12832

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[a] Includes diesel units.

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Actual and Projected Gas–Combined Cycle Generating Capacity
Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	22	22	22	22	22	22	22	22	22	22	22
ERCOT	590	587	587	587	587	795	795	1003	1393	1605	1638
MAAC	218	218	218	218	218	218	343	468	593	693	918
MAIN	0	0	0	0	0	110	110	110	110	110	110
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	110	110	110	110	110	110
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	13	13	13	13	13	13	13	13	13	13	93
NPCC	0	0	0	225	225	225	225	225	225	225	225
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	225	225	225	225	225	225	225	225
SERC	512	542	542	542	542	1062	1591	1976	2744	2824	2824
Florida	512	542	542	542	542	982	1367	1752	2520	2520	2520
Southern	0	0	0	0	0	80	224	224	224	304	304
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	898	898	898	898	981	981	981	981	1063	1063	1063
Southeast	145	145	145	145	145	145	145	145	145	145	145
West Central	753	753	753	753	753	753	753	753	753	753	753
Northern	0	0	0	0	83	83	83	83	165	165	165
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	2253	2280	2280	2505	2588	3426	4080	4798	6163	6555	6893
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	2253	2280	2280	2505	2588	3426	4080	4798	6163	6555	6893

Actual and Projected Dual Fuel(Oil/Gas)–Fired Generating Capacity[a]
Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	6924	6883	7273	7273	7273	7273	7273	7273	7273	7280	7236
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	1531	1531	1531	1525	1540	1690	1840	2062	2212	2212	2323
Cmnwlth Edison	602	602	602	602	602	602	602	602	602	602	602
East Missouri	277	277	277	277	277	277	277	277	277	277	277
S Cent Illinois	279	279	279	279	279	279	279	279	279	279	279
Wis-Upper Mich	373	373	373	367	382	532	682	904	1054	1054	1165
MAPP	614	621	589	589	589	589	589	589	589	589	589
NPCC	10052	10047	10018	10018	10018	10018	10018	10018	10018	10018	10018
New York	8986	8986	8957	8957	8957	8957	8957	8957	8957	8957	8957
NEPOOL	1066	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061
SERC	2881	3025	3354	3356	3561	3657	4888	5896	6130	7121	8237
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	177	177	177	177	177	177	1312	2320	2446	3329	4337
TVA	602	602	602	602	602	602	602	602	602	602	602
VACAR	2102	2246	2575	2577	2782	2878	2974	2974	3082	3190	3298
SPP	17871	17710	17690	17625	17486	17461	17444	17941	18193	18211	18343
Southeast	14334	14134	14134	14045	13906	13881	13864	14137	14147	14092	13780
West Central	1594	1594	1594	1594	1594	1594	1594	1594	1594	1594	1834
Northern	1943	1982	1962	1986	1986	1986	1986	2210	2452	2525	2729
WSCC[b]	28863	29132	29106	29277	29361	29365	29695	30037	30972	31647	31647
NW Pool	1844	1844	1844	1844	1844	1844	1904	1904	1904	1904	1904
Rocky Mt Area	481	481	481	481	481	481	481	473	473	473	473
Ariz-N. Mex	4258	4527	4429	4600	4516	4516	4516	4516	4591	4666	4666
Calif-So. Nev	22289	22289	22361	22361	22529	22533	22803	23153	24013	24613	24613
TOTAL(U.S.)	68736	68949	69561	69663	69828	70053	71747	73816	75387	77078	78393
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	116	116	116	116	116	116	116	116	116
TOTAL(Canada)	0	0	116	116	116	116	116	116	116	116	116
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	68736	68949	69677	69779	69944	70169	71863	73932	75503	77194	78509

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[a] Includes dual fuel(oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.

[b] See page 70, footnote a.

North American
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Actual and Projected Dual Fuel(Oil/Gas)-Steam Generating Capacity
Summer - MW
(1989-1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	5505	5467	5467	5467	5467	5467	5467	5467	5467	5432	5284
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	483	483	483	477	477	477	477	477	477	477	477
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	265	265	265	265	265	265	265	265	265	265	265
S Cent Illinois	138	138	138	138	138	138	138	138	138	138	138
Wis-Upper Mich	80	80	80	74	74	74	74	74	74	74	74
MAPP	171	164	132	132	132	132	132	132	132	132	132
NPCC	7886	7886	7857	7857	7857	7857	7857	7857	7857	7857	7857
New York	7289	7289	7260	7260	7260	7260	7260	7260	7260	7260	7260
NEPOOL	597	597	597	597	597	597	597	597	597	597	597
SERC	1089	1089	1089	995	995	995	995	995	995	995	995
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	177	177	177	177	177	177	177	177	177	177	177
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	912	912	912	818	818	818	818	818	818	818	818
SPP	17002	16802	16782	16717	16578	16553	16536	16778	16788	16806	16561
Southeast	14004	13804	13804	13715	13576	13551	13534	13807	13817	13762	13450
West Central	1572	1572	1572	1572	1572	1572	1572	1572	1572	1572	1572
Northern	1426	1426	1406	1430	1430	1430	1430	1399	1399	1472	1539
WSCC	22099	22381	22283	22398	22482	22396	22566	22598	22918	23318	23318
NW Pool	542	542	542	542	542	542	602	602	602	602	602
Rocky Mt Area	264	264	264	264	264	264	264	256	256	256	256
Ariz-N. Mex	1998	2280	2182	2297	2213	2213	2213	2213	2213	2213	2213
Calif-So. Nev	19295	19295	19295	19295	19463	19377	19487	19527	19847	20247	20247
TOTAL(U.S.)	54235	54272	54093	54043	53988	53877	54030	54304	54634	55017	54624
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	54235	54272	54093	54043	53988	53877	54030	54304	54634	55017	54624

Actual and Projected Dual Fuel(Oil/Gas)–Combustion Turbine Generating Capacity[a]
Summer – MW
(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	1276	1276	1666	1666	1666	1666	1666	1666	1666	1666	1666
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	1048	1048	1048	1048	1063	1213	1363	1585	1735	1735	1846
Cmnwlth Edison	602	602	602	602	602	602	602	602	602	602	602
East Missouri	12	12	12	12	12	12	12	12	12	12	12
S Cent Illinois	141	141	141	141	141	141	141	141	141	141	141
Wis-Upper Mich	293	293	293	293	308	458	608	830	980	980	1091
MAPP	443	457	457	457	457	457	457	457	457	457	457
NPCC	1874	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869
New York	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697
NEPOOL	177	172	172	172	172	172	172	172	172	172	172
SERC	1704	1848	1992	2088	2088	2184	3415	4423	4549	5432	6440
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	1135	2143	2269	3152	4160
TVA	602	602	602	602	602	602	602	602	602	602	602
VACAR	1102	1246	1390	1486	1486	1582	1678	1678	1678	1678	1678
SPP	566	586	586	586	586	586	586	766	1008	1008	1385
Southeast	102	102	102	102	102	102	102	102	102	102	102
West Central	22	22	22	22	22	22	22	22	22	22	262
Northern	442	462	462	462	462	462	462	642	884	884	1021
WSCC[b]	4289	4289	4361	4417	4417	4277	4207	4277	4492	4492	4492
NW Pool	802	802	802	802	802	802	802	802	802	802	802
Rocky Mt Area	217	217	217	217	217	217	217	217	217	217	217
Ariz-N. Mex	1411	1411	1411	1467	1467	1467	1467	1467	1542	1542	1542
Calif-So. Nev	1861	1861	1933	1933	1933	1793	1723	1793	1933	1933	1933
TOTAL(U.S.)	11200	11373	11979	12131	12146	12252	13563	15043	15776	16659	18155
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	116	116	116	116	116	116	116	116	116
TOTAL(Canada)	0	0	116	116	116	116	116	116	116	116	116
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	11200	11373	12095	12247	12262	12368	13679	15159	15892	16775	18271

[a] Includes diesel units.

[b] See page 70, footnote a.

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Actual and Projected Dual Fuel(Oil/Gas)–Combined Cycle Generating Capacity
Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	[illegible]
ERCOT	143	140	140	140	140	140	140	140	140	182	286
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	292	292	292	292	292	292	292	292	292	292	292
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	292	292	292	292	292	292	292	292	292	292	292
SERC	88	88	273	273	478	478	478	478	586	694	802
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	88	88	273	273	478	478	478	478	586	694	802
SPP	303	322	322	322	322	322	322	397	397	397	397
Southeast	228	228	228	228	228	228	228	228	228	228	228
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	75	94	94	94	94	94	94	169	169	169	169
WSCC[a]	2475	2462	2462	2462	2462	2692	2922	3162	3562	3837	3837
NW Pool	500	500	500	500	500	500	500	500	500	500	500
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	849	836	836	836	836	836	836	836	836	911	911
Calif-So. Nev	1133	1133	1133	1133	1133	1363	1593	1833	2233	2433	2433
TOTAL(U.S.)	3301	3304	3489	3489	3694	3924	4154	4469	4977	5402	5614
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	3301	3304	3489	3489	3694	3924	4154	4469	4977	5402	5614

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[a] See page 70, footnote a.

Actual and Projected Other (Utility) Generating Capacity[a] – Summer – MW
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	137	137	187	187	537
MAAC	134	134	209	234	234	234	234	134	234	384	384
MAIN	3	3	3	3	3	3	3	3	3	3	3
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	3	3	3	3	3	3	3	3	3	3	3
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	93	93	93	93	93	93	93	93	93	93	93
NPCC	52	52	52	52	52	52	52	52	52	52	52
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	52	52	52	52	52	52	52	52	52	52	52
SERC	0	0	0	0	0	200	490	540	790	1040	1580
Florida	0	0	0	0	0	200	200	0	0	0	0
Southern	0	0	0	0	0	0	40	40	40	40	80
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	250	500	750	1000	1500
SPP	592	592	592	578	578	598	436	436	436	363	201
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	495	495	495	505	505	505	343	343	343	343	181
Northern	97	97	97	73	73	93	93	93	93	20	20
WSCC[b]	174	213	192	194	194	196	196	221	420	578	853
NW Pool	91	91	129	129	129	129	129	129	129	129	129
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	2	2	2	2	10	10
Calif-So. Nev	83	84	63	64	64	64	64	89	289	439	714
TOTAL(U.S.)	1048	1087	1141	1154	1154	1376	1641	1616	2215	2700	3703
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	335	335	335	335	335	335	335
New Brunswick	0	0	0	0	335	335	335	335	335	335	335
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	335	335	335	335	335	335	335
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	1048	1087	1141	1154	1489	1711	1976	1951	2550	3035	4038

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[a] Includes utility-owned capacity other than nuclear, coal-, oil-, and gas-fired, conventional hydro, geothermal, and pumped storage units.

[b] See page 70, footnote a.

North American
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Actual and Projected Non-Utility Generating Capacity[a] - Summer - MW

(1989-1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	33	237	923	1243	1624	1863	1980	2130	2452	2478	2497
ERCOT	2546	2952	2650	2550	2250	2350	2125	1530	1460	1460	1324
MAAC	289	645	869	2191	3183	3668	4135	4135	4135	4135	4135
MAIN	0	0	0	0	0	0	0	0	0	62	79
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	62	79
MAPP	182	395	395	433	433	458	458	458	458	458	458
NPCC	1380	1768	2752	3770	4434	4818	4819	4999	5069	5069	5114
New York	537	640	1081	1947	2574	2958	2958	3138	3208	3208	3253
NEPOOL	843	1128	1671	1823	1860	1860	1861	1861	1861	1861	1861
SERC	1001	1019	1777	2761	3505	4557	4837	5037	5077	5087	5107
Florida	340	340	395	443	612	1207	1207	1232	1272	1282	1302
Southern	15	14	14	14	14	14	14	14	14	14	14
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	646	665	1368	2304	2879	3336	3616	3791	3791	3791	3791
SPP	11	111	111	411	411	411	411	411	411	511	511
Southeast	11	11	11	11	11	11	11	11	11	11	11
West Central	0	100	100	400	400	400	400	400	400	500	500
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC[b]	4316	6239	7995	8340	8579	8873	9347	9474	9430	9606	9614
NW Pool	549	732	785	877	883	883	938	938	993	1128	1188
Rocky Mt Area	102	174	316	317	405	527	1007	1077	1077	1077	1077
Ariz-N. Mex	360	360	360	360	360	360	360	360	372	374	374
Calif-So. Nev	3287	4999	6571	6768	6913	7030	7024	7026	7028	7007	7015
TOTAL(U.S.)	9758	13366	17472	21699	24419	26998	28112	28174	28492	28866	28639
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	30	36	125	300	420	567	657	757	802	847	867
New Brunswick	5	5	5	5	5	5	5	5	5	5	5
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	25	26	92	212	312	402	452	502	522	542	562
Quebec	0	5	28	83	103	160	200	250	275	300	300
WSCC	0	0	0	0	125	125	125	125	125	125	125
TOTAL(Canada)	30	36	125	300	545	692	782	882	927	972	992
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	9788	13402	17597	21999	24964	27690	28894	29056	29419	29838	29831

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[a] Non-utility generator capacity includes the capacity of only those non-utility which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be a available to the electric utility at the time of system peak.

[b] See page 70, footnote a.

APPENDIX B

Actual and Projected Electrical Energy Produced by Coal – Millions kWh
(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	419971	402614	405973	408632	414532	415294	420888	428376	433385	439209	444981
ERCOT	86756	87727	87852	88472	89987	90374	95805	99786	102943	110910	114166
MAAC	104853	98680	96276	93715	96076	98632	97926	100868	103285	103024	105453
MAIN	104652	101946	104365	106218	108745	111238	115545	118614	119429	120404	122401
Cmnwlth Edison	17340	15430	16910	18210	17840	19765	21165	21625	22685	23435	23365
East Missouri	23184	23434	24104	23437	25176	25614	25159	27264	27014	26432	27843
S Cent Illinois	31976	30365	30516	30525	30991	31593	32452	32458	31892	32358	32943
Wis-Upper Mich	32152	32717	32835	34046	34738	34266	36769	37267	37838	38179	38250
MAPP	96773	91819	93765	92470	92482	95590	96039	95397	98001	99183	100233
NPCC	45648	46742	47287	47558	48265	49414	49457	49063	49198	49545	49776
New York	28523	30533	30389	30710	31900	32387	32430	32036	32171	32518	32749
NEPOOL	17125	16209	16898	16848	16365	17027	17027	17027	17027	17027	17027
SERC	354461	348107	359886	365162	369120	373091	381638	385684	401653	411432	416869
Florida	52739	56930	57360	57500	57580	57584	58116	57997	63746	64510	64755
Southern	121869	116837	121730	124575	129206	128871	129488	134450	139834	142301	148099
TVA	84097	81936	83874	83660	81416	80538	81307	80981	82024	82547	84219
VACAR	95756	92404	96922	99427	100918	106098	112727	112256	116049	122074	119796
SPP	138671	135470	141805	144032	146273	149023	150039	153805	156690	159061	161859
Southeast	37706	36676	38834	40776	41703	41743	41869	42535	42366	44195	44028
West Central	53554	53044	55502	54896	56089	57475	58105	59514	61586	61898	62741
Northern	47411	45750	47469	48360	48481	49805	50065	51756	52738	52968	55090
WSCC	184068	176103	176661	181187	185512	186935	186591	185277	187784	189919	192760
NW Pool	71976	74563	74496	75143	75502	75586	75586	75984	75442	75666	76279
Rocky Mt Area	33371	29714	30551	32708	33475	33968	32799	32737	33679	34356	35237
Ariz-N. Mex	41823	38685	39033	39862	42914	43150	44190	43790	44671	45563	47081
Calif-So. Nev	36898	33141	32581	33474	33621	34231	34016	32766	33992	34334	34163
TOTAL(U.S.)	1535853	1489208	1513870	1527446	1550992	1569591	1593928	1616870	1652368	1682687	1708498
NERC-Canada											
MAPP	10594	9756	10010	9993	10672	11415	11585	11830	12429	13111	13334
NPCC	41937	41993	39801	38027	32168	34750	37881	36061	42247	44581	51940
New Brunswick	1699	1171	1142	1188	1139	1676	4118	5643	5704	6313	8588
Nova Scotia	5915	6179	6162	6480	6768	7181	8577	8982	9551	9760	10323
Ontario	34323	34643	32497	30359	24261	25893	25186	21436	26992	28508	33029
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	33197	33030	34500	36407	37720	38512	39418	40042	41259	42669	43935
TOTAL(Canada)	85728	84779	84311	84427	80560	84677	88884	87933	95935	100361	109209
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	1621581	1573987	1598181	1611873	1631552	1654268	1682812	1704803	1748303	1783048	1817707

Actual and Projected Electrical Energy Produced by Nuclear – Millions kWh

(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	37510	42310	44944	46148	44030	49715	47141	46627	46803	48760	45961
ERCOT	3376	12894	22188	25727	27586	27681	28141	29035	27985	29174	30359
MAAC	61903	63949	72202	73014	74027	73013	75970	74662	74662	76154	74524
MAIN	86929	84813	84618	85920	87377	87234	86816	85806	87849	87511	87160
Cmnwlth Edison	60687	60590	60060	59930	62795	61655	61130	62210	62125	61445	62595
East Missouri	8935	7703	7759	8990	7828	7745	8897	6887	7699	9174	7703
S Cent Illinois	5852	5529	5715	5732	5522	6557	5665	5485	6689	5750	5560
Wis-Upper Mich	11455	10991	11084	11268	11232	11277	11124	11224	11336	11142	11302
MAPP	24905	26249	24694	24821	27427	24373	24620	27409	24441	25093	27073
NPCC	56212	62670	68228	75695	75640	75148	74787	74261	74899	74267	74806
New York	23652	27130	28988	33365	33730	33178	33728	33202	33840	33208	33747
NEPOOL	32560	35540	39240	42330	41910	41970	41059	41059	41059	41059	41059
SERC	148290	169524	167706	174242	182304	183144	185828	191485	192281	193922	198432
Florida	26035	26038	24753	26323	26673	23856	27022	26038	24834	26106	26954
Southern	29192	33041	33745	36079	34949	33758	35707	34895	33847	35554	34943
TVA	3852	15308	16548	19450	25220	28942	31180	34429	36809	38873	40059
VACAR	89211	95137	92660	92390	95462	96588	91919	96123	96791	93389	96476
SPP	35997	39283	39853	41010	40942	40189	41705	39963	41447	41350	41021
Southeast	29747	31590	33340	34483	33062	33503	34597	32886	34567	33984	33569
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	6250	7693	6513	6527	7880	6686	7108	7077	6880	7366	7452
WSCC	66555	67748	68455	69567	66825	68448	68979	67160	67509	68112	66982
NW Pool	12370	13294	13459	13788	14081	14095	14095	14095	14177	14095	14095
Rocky Mt Area	672	1325	525	0	0	0	0	0	0	0	0
Ariz-N. Mex	17156	14485	17287	18185	16507	17584	18224	16344	17657	18495	17041
Calif-So. Nev	36357	38644	37184	37594	36237	36769	36660	36721	35675	35522	35846
TOTAL(U.S.)	521677	569440	592888	616144	626158	628945	633987	636408	637876	644343	646318
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	78194	82464	84911	93982	104612	106275	109801	115089	109334	109418	106502
New Brunswick	5342	4528	4484	4484	4484	4484	4484	4484	4484	4484	4484
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	67552	72636	76427	84098	94728	96391	99917	105705	99950	100034	97118
Quebec	5300	5300	4000	5400	5400	5400	5400	4900	4900	4900	4900
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	78194	82464	84911	93982	104612	106275	109801	115089	109334	109418	106502
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	599871	651904	677799	710126	730770	735220	743788	751497	747210	753761	752820

Actual and Projected Electrical Energy Produced by Hydro[a] – Millions kWh

(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL[b]	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	2589	3160	3165	3173	3184	3183	3179	3179	3178	3177	3175
ERCOT	520	664	660	660	660	660	660	660	660	660	660
MAAC	3407	3382	3382	3382	3382	3382	3382	3382	3382	3382	3382
MAIN	2312	2089	2126	2190	2190	2209	2210	2210	2209	2209	2209
Cmnwlth Edison	7	0	0	0	0	0	0	0	0	0	0
East Missouri	1221	786	786	786	786	786	786	786	786	786	786
S Cent Illinois	9	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	1075	1303	1340	1404	1404	1423	1424	1424	1423	1423	1423
MAPP	10985	11208	12294	12765	12981	13098	13158	13264	13315	13314	13355
NPCC	29077	29536	29992	29978	29886	29682	29610	29668	29731	30018	30038
New York	24657	24526	24982	24958	24866	24692	24620	24678	24741	25028	25048
NEPOOL	4420	5010	5010	5020	5020	4990	4990	4990	4990	4990	4990
SERC	16900	31634	31250	32161	32190	32161	32135	32135	32164	32160	32162
Florida	202	244	244	244	244	244	244	244	244	244	244
Southern	3403	6763	6763	6763	6763	6763	6763	6763	6763	6763	6763
TVA	9941	18497	18113	18557	18562	18557	18557	18557	18562	18557	18557
VACAR	3354	6130	6130	6597	6621	6597	6571	6571	6595	6596	6598
SPP	6598	5871	5871	5871	5871	5871	5911	5996	5996	5996	5996
Southeast	486	294	294	294	294	294	334	419	419	419	419
West Central	6035	5517	5517	5517	5517	5517	5517	5517	5517	5517	5517
Northern	77	60	60	60	60	60	60	60	60	60	60
WSCC	150967	153324	157615	156303	156391	155661	155730	155943	156322	155830	155495
NW Pool	115232	110646	111472	111570	111898	110957	110557	110557	110885	110557	110128
Rocky Mt Area	6948	8575	9379	8069	8069	8069	8069	8069	8069	8069	8069
Ariz-N. Mex	3113	2690	3768	3590	3409	3322	3510	3515	3508	3434	3414
Calif-So. Nev	25674	31413	32996	33074	33015	33313	33594	33802	33860	33770	33884
TOTAL(U.S.)	223355	240868	246355	246483	246735	245907	245975	246437	246957	246746	246472
NERC-Canada											
MAPP	17714	24332	26357	29821	31147	31930	32102	32514	32186	32149	32971
NPCC	152676	159932	160025	164144	169926	176321	178241	182968	189824	194988	198484
New Brunswick	2396	2652	2652	2652	2652	2652	2652	2652	2652	2652	2652
Nova Scotia	1091	1011	1011	1011	1011	1011	1011	1015	1015	1015	1015
Ontario	35087	35194	35354	35477	35656	35603	35635	35639	35812	36363	36363
Quebec	114102	121075	121008	125004	130607	137055	138943	143662	150345	154958	158454
WSCC	53665	48772	49776	50160	50852	51327	51268	52523	52182	52526	53112
TOTAL(Canada)	224055	233036	236158	244125	251925	259578	261611	268005	274192	279663	284567
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	447410	473904	482513	490608	498660	505485	507586	514442	521149	526409	531039

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.

[b] Capacity for actual year can be greater than capacity for forecast years if median or average hydro conditions occurred.

North American
Electric
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Council

Actual and Projected Electrical Energy Produced by Oil and Gas[a]

Millions of kWh

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1625	2106	1750	1119	940	1033	1927	1992	2485	2827	3647
ERCOT	88087	79796	73925	71937	73837	79600	78584	78175	81334	79871	80515
MAAC	23274	23241	20079	18871	15116	17539	19248	22077	24755	28030	31951
MAIN	1372	602	648	897	1111	1632	2053	2201	2629	3871	4412
Cmnwlth Edison	852	300	350	490	650	1010	1450	1455	1825	2880	3205
East Missouri	247	90	77	140	118	171	145	143	164	190	238
S Cent Illinois	103	128	118	127	133	155	206	288	313	398	466
Wis-Upper Mich	170	84	103	140	210	296	252	315	327	403	503
MAPP	1002	1085	1244	1530	1909	2329	2643	2447	3181	3224	3235
NPCC	93821	87549	77981	62961	63912	65234	71593	74291	76076	79435	83236
New York	53862	47038	44807	36222	33446	33130	35309	35044	34174	35149	36672
NEPOOL	39959	40511	33174	26739	30466	32104	36284	39247	41902	44286	46564
SERC	42643	39219	44175	45154	48634	51123	53107	60375	61420	68093	77693
Florida	38610	35608	39624	40332	42892	46513	47542	53878	53919	59232	66536
Southern	1218	969	904	733	910	758	1306	1417	1675	1807	2361
TVA	177	4	7	6	7	32	78	415	752	908	1165
VACAR	2638	2638	3640	4083	4825	3820	4181	4665	5074	6146	7631
SPP	60987	61856	62242	58632	60349	62374	64651	69061	70595	73885	78092
Southeast	37371	40098	39508	36737	37798	38132	38349	40763	41454	42915	46019
West Central	22470	20693	21501	20504	21319	22756	24256	26301	26547	28092	29442
Northern	1146	1065	1233	1391	1232	1486	2046	1997	2594	2878	2631
WSCC	66506	46103	42692	40953	47176	47382	51840	57365	61360	65438	69644
NW Pool	944	1640	3883	3900	3946	3926	3952	3917	3946	3952	3952
Rocky Mt Area	218	275	263	299	312	335	355	339	340	483	562
Ariz-N. Mex	4646	5792	3697	3862	4461	4699	5313	6359	6172	6667	7893
Calif-So. Nev	60698	38396	34849	32892	38457	38422	42220	46750	50902	54336	57237
TOTAL(U.S.)	379317	341557	324736	302054	312984	328246	345646	367984	383835	404674	432425
NERC-Canada											
MAPP	579	678	277	278	220	162	190	223	371	222	269
NPCC	7607	7938	8693	8369	8104	8554	6662	7274	7221	7101	5925
New Brunswick	5596	5775	5937	5811	5521	6078	5338	6061	6288	6065	5109
Nova Scotia	1525	1673	2313	2420	2490	2383	1231	1110	828	895	599
Ontario	386	490	443	138	93	93	93	103	105	141	217
Quebec	100	0	0	0	0	0	0	0	0	0	0
WSCC	2330	3329	2336	2404	2856	3459	6079	5079	6415	7175	7463
TOTAL(Canada)	10516	11945	11306	11051	11180	12175	12931	12576	14007	14498	13657
NERC-Mexico											
WSCC	1144	1356	1966	1999	2033	1984	2366	2777	3224	3694	4205
TOTAL(Mexico)	1144	1356	1966	1999	2033	1984	2366	2777	3224	3694	4205
NERC-Total	390977	354858	338008	315104	326197	342405	360943	383337	401066	422866	450287

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[a] Oil-fired, gas-fired, and dual fuel (oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.

Actual and Projected Electrical Energy Produced by Oil^a – Millions kWh

(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1196	1745	1446	947	810	917	1400	1292	1405	1535	1911
ERCOT	593	390	415	377	390	402	398	384	386	375	378
MAAC	18391	17484	14747	14055	11184	12434	13199	15292	16840	18682	21453
MAIN	844	398	490	645	779	1134	1538	1572	1932	2957	3276
Cmnwlth Edison	524	240	340	475	630	970	1370	1385	1725	2695	2995
East Missouri	192	59	53	93	57	57	73	54	73	88	98
S Cent Illinois	70	93	85	69	80	90	91	128	129	169	178
Wis-Upper Mich	58	6	12	8	12	17	4	5	5	5	5
MAPP	451	424	468	678	846	1094	895	745	817	851	922
NPCC	77789	72734	62882	47578	48376	49299	55273	57912	59642	62953	66707
New York	39759	34000	31507	22722	19946	19430	21309	21044	20174	21149	22672
NEPOOL	38030	38734	31375	24856	28430	29869	33964	36868	39468	41804	44035
SERC	24966	17585	21715	23165	25427	26181	27643	33880	34704	41312	50516
Florida	22052	14874	18622	20057	22455	24301	25335	30630	30609	36124	43311
Southern	201	78	43	14	45	54	79	140	257	365	677
TVA	177	4	7	6	7	32	78	415	752	908	1165
VACAR	2536	2629	3043	3088	2920	1794	2151	2695	3086	3915	5363
SPP	935	334	86	92	231	338	508	408	882	668	1363
Southeast	884	270	18	14	154	255	419	313	789	542	1237
West Central	9	13	13	13	13	13	13	13	27	51	52
Northern	42	51	55	65	64	70	76	82	66	75	74
WSCC	8275	1855	1493	1272	1414	1427	1567	1567	1885	1761	1936
NW Pool	436	0	51	54	54	54	54	54	54	54	54
Rocky Mt Area	0	15	15	19	19	20	20	21	22	22	23
Ariz-N. Mex	75	92	92	202	220	224	314	386	456	425	476
Calif-So. Nev	7764	1748	1335	997	1121	1129	1179	1106	1353	1260	1383
TOTAL(U.S.)	133440	112949	103742	88809	89457	93226	102421	113052	118493	131094	148462
NERC-Canada											
MAPP	24	25	18	18	18	18	18	19	19	19	19
NPCC	7607	7938	8693	8369	8104	8554	6662	7274	7221	7101	5925
New Brunswick	5596	5775	5937	5811	5521	6078	5338	6061	6288	6065	5109
Nova Scotia	1525	1673	2313	2420	2490	2383	1231	1110	828	895	599
Ontario	386	490	443	138	93	93	93	103	105	141	217
Quebec	100	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	7631	7963	8711	8387	8122	8572	6680	7293	7240	7120	5944
NERC-Mexico											
WSCC	1144	1356	1966	1999	2033	1984	2366	2777	3224	3694	4205
TOTAL(Mexico)	1144	1356	1966	1999	2033	1984	2366	2777	3224	3694	4205
NERC-Total	142215	122268	114419	99195	99612	103782	111467	123122	128957	141908	158611

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[a] Oil-fired steam, combustion turbine (and diesel), and combined cycle units.

North American
Electric
Reliability
Council

Actual and Projected Electrical Energy Produced by Oil–Steam
Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1088	1125	856	546	433	462	804	572	580	554	600
ERCOT	519	356	352	333	333	339	333	333	331	327	330
MAAC	16790	16580	14171	13543	10726	11871	12561	14701	16196	17834	20412
MAIN	756	371	449	560	729	1071	1455	1510	1830	2793	3064
Cmnwlth Edison	482	240	335	465	620	950	1335	1355	1675	2605	2865
East Missouri	180	46	36	34	37	38	36	40	39	37	39
S Cent Illinois	70	85	78	61	72	83	84	115	116	151	160
Wis-Upper Mich	24	0	0	0	0	0	0	0	0	0	0
MAPP	71	46	47	47	47	50	49	56	58	84	75
NPCC	75828	71245	61515	46106	47250	47687	53436	55915	57514	60648	64264
New York	38978	33289	30862	22083	19868	19344	21220	20943	20077	20994	22494
NEPOOL	36850	37956	30653	24023	27382	28343	32216	34972	37437	39654	41770
SERC	24257	17400	21184	22605	24608	25308	26800	32153	32447	37530	44289
Florida	21723	14742	18189	19576	21708	23538	24728	29688	29495	34012	39628
Southern	140	75	28	7	27	28	18	20	37	42	71
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	2394	2583	2967	3022	2873	1742	2054	2445	2915	3476	4590
SPP	885	298	46	43	184	288	456	354	849	608	1193
Southeast	856	270	18	14	154	255	419	313	789	517	1106
West Central	9	13	13	13	13	13	13	13	27	51	52
Northern	20	15	15	16	17	20	24	28	33	40	35
WSCC	8231	1647	1244	969	1068	1080	1213	1184	1478	1382	1541
NW Pool	433	0	18	18	18	18	18	18	18	18	18
Rocky Mt Area	0	12	12	15	15	15	15	15	15	15	15
Ariz-N. Mex	75	90	90	200	211	211	309	350	414	419	457
Calif-So. Nev	7723	1545	1124	736	824	836	871	801	1031	930	1051
TOTAL(U.S.)	128425	109068	99864	84752	85378	88156	97107	106778	111283	121760	135768
NERC-Canada											
MAPP	7	7	0	0	0	0	0	0	0	0	0
NPCC	7557	7918	8671	8334	8088	8532	6647	7259	7204	7078	5899
New Brunswick	5593	5768	5928	5789	5518	6069	5336	6057	6282	6058	5107
Nova Scotia	1498	1673	2313	2420	2490	2383	1231	1110	828	895	599
Ontario	366	477	430	125	80	80	80	92	94	125	193
Quebec	100	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	7564	7925	8671	8334	8088	8532	6647	7259	7204	7078	5899
NERC-Mexico											
WSCC	1126	1138	1940	1999	2033	1984	2366	2777	3224	3694	4205
TOTAL(Mexico)	1126	1138	1940	1999	2033	1984	2366	2777	3224	3694	4205
NERC-Total	137115	118131	110475	95085	95499	98672	106120	116814	121711	132532	145872

Actual and Projected Electrical Energy Produced by Oil-Combustion Turbine[a]
Millions kWh
(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	108	620	590	401	377	455	511	568	669	814	1117
ERCOT	74	34	63	44	57	63	65	51	55	48	48
MAAC	1204	770	457	415	378	469	535	485	560	720	895
MAIN	88	27	41	85	50	63	83	62	102	164	212
Cmnwlth Edison	42	0	5	10	10	20	35	30	50	90	130
East Missouri	12	13	17	59	20	19	37	14	34	51	59
S Cent Illinois	0	8	7	8	8	7	7	13	13	18	18
Wis-Upper Mich	34	6	12	8	12	17	4	5	5	5	5
MAPP	373	371	414	624	792	1037	839	682	752	760	840
NPCC	1231	1060	952	996	523	795	908	989	1048	1162	1239
New York	781	711	645	639	78	86	89	101	97	155	178
NEPOOL	450	349	307	357	445	709	819	888	951	1007	1061
SERC	701	171	502	529	773	837	809	1679	2231	3716	6131
Florida	321	118	404	450	701	727	573	894	1088	2046	3587
Southern	61	3	15	7	18	26	61	120	220	323	606
TVA	177	4	7	6	7	32	78	415	752	908	1165
VACAR	142	46	76	66	47	52	97	250	171	439	773
SPP	50	36	40	49	47	50	52	54	33	60	170
Southeast	28	0	0	0	0	0	0	0	0	25	131
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	22	36	40	49	47	50	52	54	33	35	39
WSCC	44	204	245	301	341	340	351	364	376	376	388
NW Pool	3	0	33	36	36	36	36	36	36	36	36
Rocky Mt Area	0	3	3	4	4	5	5	6	7	7	8
Ariz-N. Mex	0	2	2	2	6	8	4	19	13	5	14
Calif-So. Nev	41	199	207	259	295	291	306	303	320	328	330
TOTAL(U.S.)	3873	3293	3304	3444	3338	4109	4153	4934	5826	7820	11040
NERC-Canada											
MAPP	17	18	18	18	18	18	18	19	19	19	19
NPCC	50	20	22	35	16	22	15	15	17	23	26
New Brunswick	3	7	9	22	3	9	2	4	6	7	2
Nova Scotia	27	0	0	0	0	0	0	0	0	0	0
Ontario	20	13	13	13	13	13	13	11	11	16	24
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	67	38	40	53	34	40	33	34	36	42	45
NERC-Mexico											
WSCC	18	218	26	0	0	0	0	0	0	0	0
TOTAL(Mexico)	18	218	26	0	0	0	0	0	0	0	0
NERC-Total	3958	3549	3370	3497	3372	4149	4186	4968	5862	7862	11085

[a] Includes diesel units.

Actual and Projected Electrical Energy Produced by Oil-Combined Cycle[a]
Millions kWh
(1989–1998 Forecast)

North American
Electric
Reliability
Council

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	85	152	156	167	194
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	397	134	119	97	80	94	103	106	84	128	146
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	7	7	7	7	7	7	7	7	7	7	7
NPCC	730	429	415	476	603	817	929	1008	1080	1143	1204
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	730	429	415	476	603	817	929	1008	1080	1143	1204
SERC	8	14	29	31	46	36	34	48	26	66	96
Florida	8	14	29	31	46	36	34	48	26	66	96
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	4	4	2	5	7	3	19	31	3	7
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	3	5	1	17	29	1	5
Calif-So. Nev	0	4	4	2	2	2	2	2	2	2	2
TOTAL(U.S.)	1142	588	574	613	741	961	1161	1340	1384	1514	1654
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	1142	588	574	613	741	961	1161	1340	1384	1514	1654

Actual and Projected Electrical Energy Produced by Gas[a] – Millions kWh
(1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	429	361	304	172	130	116	527	700	1080	1292	1736
ERCOT	87494	79406	73510	71560	73447	79198	78186	77791	80948	79496	80137
MAAC	4883	5757	5332	4816	3932	5105	6049	6785	7915	9348	10498
MAIN	528	204	158	252	332	498	515	629	697	914	1136
Cmnwlth Edison	328	60	10	15	20	40	80	70	100	185	210
East Missouri	55	31	24	47	61	114	72	89	91	102	140
S Cent Illinois	33	35	33	58	53	65	115	160	184	229	288
Wis-Upper Mich	112	78	91	132	198	279	248	310	322	398	498
MAPP	551	661	776	852	1063	1235	1748	1702	2364	2373	2313
NPCC	16032	14815	15099	15383	15536	15935	16320	16379	16434	16482	16529
New York	14103	13038	13300	13500	13500	13700	14000	14000	14000	14000	14000
NEPOOL	1929	1777	1799	1883	2036	2235	2320	2379	2434	2482	2529
SERC	17677	21634	22460	21989	23207	24942	25464	26495	26716	26781	27177
Florida	16558	20734	21002	20275	20437	22212	22207	23248	23310	23108	23225
Southern	1017	891	861	719	865	704	1227	1277	1418	1442	1684
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	102	9	597	995	1905	2026	2030	1970	1988	2231	2268
SPP	60052	61522	62156	58540	60118	62036	64143	68653	69713	73217	76729
Southeast	36487	39828	39490	36723	37644	37877	37930	40450	40665	42373	44782
West Central	22461	20680	21488	20491	21306	22743	24243	26288	26520	28041	29390
Northern	1104	1014	1178	1326	1168	1416	1970	1915	2528	2803	2557
WSCC	58231	44248	41199	39681	45762	45955	50273	55798	59475	63677	67708
NW Pool	508	1640	3832	3846	3892	3872	3898	3863	3892	3898	3898
Rocky Mt Area	218	260	248	280	293	315	335	318	318	461	539
Ariz-N. Mex	4571	5700	3605	3660	4241	4475	4999	5973	5716	6242	7417
Calif-So. Nev	52934	36648	33514	31895	37336	37293	41041	45644	49549	53076	55854
TOTAL(U.S.)	245877	228608	220994	213245	223527	235020	243225	254932	265342	273580	283963
NERC-Canada											
MAPP	555	653	259	260	202	144	172	204	352	203	250
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	2330	3329	2336	2404	2856	3459	6079	5079	6415	7175	7463
TOTAL(Canada)	2885	3982	2595	2664	3058	3603	6251	5283	6767	7378	7713
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	248762	232590	223589	215909	226585	238623	249476	260215	272109	280958	291676

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[a] Gas-fired steam, combustion turbine (and diesel), and combined cycle units.

North American
Electric
Reliability
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Actual and Projected Electrical Energy Produced by Gas-Steam
Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	368	204	157	71	0	0	326	317	629	546	918
ERCOT	82707	74585	68889	67294	69102	73968	71888	71110	72227	69633	69436
MAAC	3652	3606	3082	2946	2329	2587	2732	3203	3516	3879	4442
MAIN	462	122	56	113	118	176	131	130	133	158	201
Cmnwlth Edison	319	55	0	0	0	0	0	0	0	0	0
East Missouri	55	30	23	46	60	113	71	88	90	101	139
S Cent Illinois	27	23	22	49	39	28	27	39	39	52	56
Wis-Upper Mich	61	14	11	18	19	35	33	3	4	5	6
MAPP	449	475	556	596	727	777	711	709	776	824	764
NPCC	14783	13697	13935	14176	14222	14453	14735	14735	14735	14735	14735
New York	13454	12300	12502	12690	12690	12878	13160	13160	13160	13160	13160
NEPOOL	1329	1397	1433	1486	1532	1575	1575	1575	1575	1575	1575
SERC	14879	18969	19146	18331	18452	17263	14294	12633	12851	12495	12449
Florida	14090	18314	18540	17861	17835	16815	13994	12232	12396	12015	11998
Southern	720	655	606	470	617	448	300	401	455	480	451
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	69	0	0	0	0	0	0	0	0	0	0
SPP	56023	56008	56972	53154	54910	56208	58169	62488	63685	66543	70012
Southeast	35392	37957	37810	35087	36127	36208	36264	38840	39090	40634	43062
West Central	19601	17082	18054	16817	17695	18684	20087	21977	22486	23561	24844
Northern	1030	969	1108	1250	1088	1316	1818	1671	2109	2348	2106
WSCC	53976	39452	35129	33194	39136	38501	40905	43830	45302	45530	49035
NW Pool	355	586	551	561	589	587	613	578	589	613	613
Rocky Mt Area	211	254	242	274	287	309	329	312	312	312	312
Ariz-N. Mex	2458	2877	1772	1658	2213	2220	2423	2952	2596	2735	3180
Calif-So. Nev	50952	35735	32564	30701	36047	35385	37540	39988	41805	41870	44930
TOTAL(U.S.)	227299	207118	197922	189875	198996	203933	203891	209155	213854	214343	221992
NERC-Canada											
MAPP	482	519	167	148	69	52	62	59	80	48	56
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	1704	2764	1898	2035	2496	3069	5534	4345	5505	6218	6311
TOTAL(Canada)	2186	3283	2065	2183	2565	3121	5596	4404	5585	6266	6367
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	229485	210401	199987	192058	201561	207054	209487	213559	219439	220609	228359

Actual and Projected Electrical Energy Produced by Gas-Combustion Turbine[a]

Millions kWh

(1989-1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	61	157	147	101	108	105	177	352	381	677	734
ERCOT	519	401	594	511	663	698	822	734	762	696	848
MAAC	753	947	1176	997	886	735	815	1004	1255	1391	947
MAIN	66	82	102	139	214	297	309	399	439	606	735
Cmnwlth Edison	9	5	10	15	20	40	80	70	100	185	210
East Missouri	0	1	1	1	1	1	1	1	1	1	1
S Cent Illinois	6	12	11	9	14	12	13	21	20	27	32
Wis-Upper Mich	51	64	80	114	179	244	215	307	318	393	492
MAPP	102	186	220	256	336	458	683	779	1307	1210	1312
NPCC	689	778	838	850	850	862	880	880	880	880	880
New York	649	738	798	810	810	822	840	840	840	840	840
NEPOOL	40	40	40	40	40	40	40	40	40	40	40
SERC	442	334	454	457	562	350	494	469	393	545	397
Florida	112	89	177	191	293	95	211	137	113	273	171
Southern	297	236	255	249	248	246	253	254	250	247	199
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	33	9	22	17	21	9	30	78	30	25	27
SPP	346	251	277	282	288	428	476	527	644	687	589
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	276	206	207	206	208	337	379	361	364	388	383
Northern	70	45	70	76	80	91	97	166	280	299	206
WSCC	506	1028	1143	1202	1212	1128	1119	1137	1251	1640	2462
NW Pool	153	628	804	806	817	806	806	806	817	806	806
Rocky Mt Area	7	6	6	6	6	6	6	6	6	149	227
Ariz-N. Mex	145	119	50	49	72	120	173	204	286	530	1272
Calif-So. Nev	201	275	283	341	317	196	134	121	142	155	157
TOTAL(U.S.)	3484	4164	4951	4795	5119	5061	5775	6281	7312	8332	8904
NERC-Canada											
MAPP	73	134	92	112	133	92	110	145	272	155	194
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	626	565	438	369	360	390	545	734	910	957	1152
TOTAL(Canada)	699	699	530	481	493	482	655	879	1182	1112	1346
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	4183	4863	5481	5276	5612	5543	6430	7160	8494	9444	10250

[a] Includes diesel units.

North American
Electric
Reliability
Council

Actual and Projected Electrical Energy Produced by Gas-Combined Cycle Millions kWh

(1989-1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	22	11	24	31	70	69	84
ERCOT	4268	4420	4027	3755	3682	4532	5476	5947	7959	9167	9853
MAAC	478	1204	1074	873	717	1783	2502	2578	3144	4078	5109
MAIN	0	0	0	0	0	25	75	100	125	150	200
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	25	75	100	125	150	200
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	354	214	281	339	237
NPCC	560	340	326	357	464	620	705	764	819	867	914
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	560	340	326	357	464	620	705	764	819	867	914
SERC	2356	2331	2860	3201	4193	7329	10676	13393	13472	13741	14331
Florida	2356	2331	2285	2223	2309	5302	8002	10879	10801	10820	11056
Southern	0	0	0	0	0	10	674	622	713	715	1034
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	575	978	1884	2017	2000	1892	1958	2206	2241
SPP	3683	5263	4907	5104	4920	5400	5498	5638	5384	5987	6128
Southeast	1095	1871	1680	1636	1517	1669	1666	1610	1575	1739	1720
West Central	2584	3392	3227	3468	3403	3722	3777	3950	3670	4092	4163
Northern	4	0	0	0	0	9	55	78	139	156	245
WSCC	3749	3768	4927	5285	5414	6326	8249	10831	12922	16507	16211
NW Pool	0	426	2477	2479	2486	2479	2479	2479	2486	2479	2479
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	1968	2704	1783	1953	1956	2135	2403	2817	2834	2977	2965
Calif-So. Nev	1781	638	667	853	972	1712	3367	5535	7602	11051	10767
TOTAL(U.S.)	15094	17326	18121	18575	19412	26026	33559	39496	44176	50905	53067
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	15094	17326	18121	18575	19412	26026	33559	39496	44176	50905	53067

North American
Electric
Reliability
Council

Actual and Projected Electrical Energy Produced by Geothermal
Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	11992	12997	12597	12820	13055	14019	13941	14200	15017	15065	15017
NW Pool	175	203	251	251	251	251	251	251	251	251	251
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	11817	12794	12346	12569	12804	13768	13690	13949	14766	14814	14766
TOTAL(U.S.)	11992	12997	12597	12820	13055	14019	13941	14200	15017	15065	15017
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	4249	4351	4027	4300	4600	5000	5000	5000	5000	5000	5000
TOTAL(Mexico)	4249	4351	4027	4300	4600	5000	5000	5000	5000	5000	5000
NERC-Total	16241	17348	16624	17120	17655	19019	18941	19200	20017	20065	20017

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Actual and Projected Electrical Energy Produced by Other (Utility) Fuels
Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC–U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	149	256	259	257	257
MAAC[a]	1244	1073	1007	1027	988	993	996	1008	1007	1012	1024
MAIN	0	566	566	565	570	560	560	569	569	568	569
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	566	566	565	570	560	560	569	569	568	569
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis–Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	180	433	422	447	458	484	442	436	480	477	448
NPCC	230	579	772	971	1211	1453	1667	1976	2144	2212	2385
New York	0	379	572	761	991	1223	1437	1746	1914	1982	2155
NEPOOL	230	200	200	210	220	230	230	230	230	230	230
SERC	0	0	0	0	0	5	158	215	405	514	832
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	5	155	180	180	185	310
TVA	0	0	0	0	0	0	2	23	218	301	435
VACAR	0	0	0	0	0	0	1	12	7	28	87
SPP	0	292	313	313	314	450	546	546	534	546	535
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	292	313	313	314	313	313	313	314	313	313
Northern	0	0	0	0	0	137	233	233	220	233	222
WSCC[b,c]	3270	1287	1977	3809	5367	8021	11014	12004	14665	16011	20226
NW Pool[b]	1203	725	1874	3707	5265	7915	10908	11898	14559	15887	18012
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz–N. Mex	0	0	0	0	0	4	4	4	4	22	22
Calif–So. Nev[c]	2067	562	103	102	102	102	102	102	102	102	2192
TOTAL(U.S.)[a,b,c]	4924	4230	5057	7132	8908	11966	15532	17010	20063	21597	26276
NERC–Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	711	902	1198	1126	876	1554	1197	2884	3499	3801	4766
TOTAL(Canada)	711	902	1198	1126	876	1554	1197	2884	3499	3801	4766
NERC–Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC–Total[a,b,c]	5635	5132	6255	8258	9784	13520	16729	19894	23562	25398	31042

[a] Includes Bethlehem Steel and Delaware City 1 & 2.

[b] The U.S. portion of the Northwest Power Pool (NWPP) is projecting an energy deficiency under adverse hydro conditions for 1990 through 1998. Included are imports that would be necessary from systems outside of NWPP (U.S.) ranging from 1,013 (1990) to 17,127 (1998) millions of kWh.

[c] Excludes the excess of pumped storage generation over pumped storage load in WSCC–U.S.

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Actual and Projected Electrical Energy Produced by Non-Utility Generators (NUGs)[a]
Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1168	1992	7120	9074	11305	11996	12531	13316	14692	14815	14606
ERCOT	20667	20906	22061	24129	23449	23359	22596	19852	20474	20419	21623
MAAC	2049	6491	10252	17141	23820	25471	27774	28227	28545	29351	29777
MAIN	15	18	18	18	18	18	18	1	1	258	508
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	15	18	18	18	18	18	18	1	1	258	508
MAPP	160	195	377	377	377	370	370	369	369	369	369
NPCC	5998	6232	13790	22020	25694	29376	29667	30921	31391	31408	31713
New York	2108	2652	6400	13230	16374	19736	20027	21281	21751	21768	22073
NEPOOL	3890	3580	7390	8790	9320	9640	9640	9640	9640	9640	9640
SERC	7388	8994	9924	11984	14385	19416	21597	23123	24369	25279	25715
Florida	1159	2422	2803	3170	4101	7739	7739	7892	8159	8199	8321
Southern	181	170	170	170	170	170	170	170	170	170	170
TVA	870	788	745	745	219	0	0	0	0	0	0
VACAR	5178	5614	6206	7899	9895	11507	13688	15061	16040	16910	17224
SPP	1040	2702	3013	4721	4725	4721	4721	4721	4725	4721	4721
Southeast	801	2051	2051	2051	2055	2051	2051	2051	2055	2051	2051
West Central	239	651	962	2670	2670	2670	2670	2670	2670	2670	2670
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	27577	42022	52856	57168	58907	59959	62545	63621	64450	65711	66135
NW Pool	1772	4575	4947	5661	5692	5890	6094	6300	6511	7732	7958
Rocky Mt Area	425	945	1460	1633	1834	2420	4602	5516	5604	5604	5604
Ariz-N. Mex	2071	2418	2070	2070	2075	2070	2070	2070	2143	2150	2150
Calif-So. Nev	23309	34084	44379	47804	49306	49579	49779	49735	50192	50225	50423
TOTAL(U.S.)	66062	89552	119411	146632	162680	174686	181819	184151	189016	192331	195167
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	223	356	1746	1582	1660	2583	3040	3472	3756	4040	4160
New Brunswick	45	43	43	43	43	43	43	43	43	43	43
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	170	280	1670	1486	1551	2441	2800	3100	3220	3340	3460
Quebec	8	33	33	53	66	99	197	329	493	657	657
WSCC	0	0	0	137	547	553	553	553	553	553	553
TOTAL(Canada)	223	356	1746	1719	2207	3136	3593	4025	4309	4593	4713
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	66285	89908	121157	148351	164887	177822	185412	188176	193325	196924	199880

[a] Non-utility generating capacity includes the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of the system peak.

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Actual and Projected Electrical Energy Requirements for Pumped Storage Load (Input) – Millions kWh
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	6037	6738	6567	6697	6034	6107	6119	6341	6214	6304	6322
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	3170	2602	2224	2695	3302	3222	2965	2981	2961	2965	2924
MAIN	560	30	27	69	110	96	105	158	116	124	160
Cmnwlth Edison	517	0	0	0	0	0	0	0	0	0	0
East Missouri	43	30	27	69	110	96	105	158	116	124	160
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4085	2477	2129	2319	2293	2358	2357	2344	2490	2331	2168
New York	1875	427	459	489	473	538	537	524	670	511	348
NEPOOL	2210	2050	1670	1830	1820	1820	1820	1820	1820	1820	1820
SERC	6923	4539	4993	5063	5650	6742	7824	8361	9684	10755	11152
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	221	201	304	345	268	248	241	276	1393	1456	1559
TVA	2274	664	755	981	1223	1690	2202	2286	2586	2774	2902
VACAR	4428	3674	3934	3737	4159	4804	5381	5799	5705	6525	6691
SPP	210	145	145	145	145	145	145	145	145	145	145
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	210	145	145	145	145	145	145	145	145	145	145
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	2232	1370	1927	1945	1868	1753	1874	1774	1823	1952	2303
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	356	271	273	313	413	413	553	553	553	553	553
Ariz-N. Mex	239	214	261	281	257	247	190	187	144	143	134
Calif-So. Nev	1637	885	1393	1351	1198	1093	1131	1034	1126	1256	1616
TOTAL(U.S.)	23217	17901	18012	18933	19402	20423	21389	22104	23433	24576	25174
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	23217	17901	18012	18933	19402	20423	21389	22104	23433	24576	25174

Actual and Projected Electrical Energy Produced (Output) by Pumped Storage Millions kWh (1989–1998 Forecast)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	4452	4982	4838	4959	4459	4503	4488	4614	4583	4639	4641
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	2241	1820	1554	1888	2317	2260	2076	2088	2074	2076	2048
MAIN	365	16	13	36	59	51	57	84	62	67	84
Cmnwlth Edison	352	0	0	0	0	0	0	0	0	0	0
East Missouri	13	16	13	36	59	51	57	84	62	67	84
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	2865	1809	1551	1693	1671	1717	1716	1707	1809	1698	1584
New York	1235	299	321	343	331	377	376	367	469	358	244
NEPOOL	1630	1510	1230	1350	1340	1340	1340	1340	1340	1340	1340
SERC	5376	3546	3891	3963	4410	5249	5930	6496	7555	8385	8715
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	165	151	228	274	217	200	195	219	1133	1187	1285
TVA	1784	514	585	759	947	1309	1551	1770	1989	2148	2247
VACAR	3427	2881	3078	2930	3246	3740	4184	4507	4433	5050	5183
SPP	115	75	75	75	75	75	75	75	75	75	75
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	115	75	75	75	75	75	75	75	75	75	75
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC[a]	3094	2670	3106	3016	3064	3120	3263	3206	3228	3324	3575
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	256	189	191	221	291	291	391	391	391	391	391
Ariz-N. Mex	171	149	182	197	180	173	133	131	101	100	94
Calif-So. Nev[a]	2667	2332	2733	2598	2593	2656	2739	2684	2736	2833	3090
TOTAL(U.S.)	18508	14918	15028	15630	16055	16975	17605	18270	19386	20264	20722
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	18508	14918	15028	15630	16055	16975	17605	18270	19386	20264	20722

[a] Pumped storage generation (output) is greater than pumped storage load (input) due to pumped storage facilities being in combination with California reservoirs.

North American Electric Reliability Council

Regional Fossil Fuel Requirements[a] for Electrical Energy Production Western Lignite[b] (Steam) – 1000's Tons

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR[c]	--	--	--	--	--	--	--	--	--	--	--
ERCOT	46407	45666	45267	45426	45447	45566	48671	52370	54051	60127	61613
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	23274	22052	21605	21491	21997	23312	23683	23794	24054	24112	24454
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	12093	12013	12798	13319	13112	13396	13693	13471	13730	13865	13836
Southeast	1616	1823	2150	2150	2151	2072	2150	2150	2151	2150	2150
West Central	7505	7203	7281	7700	7783	7869	7956	8046	8138	8232	8329
Northern	2972	2987	3367	3469	3178	3455	3587	3275	3441	3483	3357
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	81774	79731	79670	80236	80556	82274	86047	89635	91835	98104	99903
NERC-Canada											
MAPP	10329	9434	9081	9144	9637	10199	10352	10554	11043	11580	11759
NPCC	2268	1312	1159	945	944	944	1575	2193	2300	2300	2300
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario[d]	2268	1312	1159	945	944	944	1575	2193	2300	2300	2300
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	12597	10746	10240	10089	10581	11143	11927	12747	13343	13880	14059
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	94371	90477	89910	90325	91137	93417	97974	102382	105178	111984	113962

[a] Excludes coal requirements of non-utility generators (NUGs).

[b] Coal mined west of the Mississippi River.

[c] Coal sources for ECAR are not identified. See Table 24 for ECAR total coal figures.

[d] Lignite from western Canada.

North American Electric Reliability Council

Regional Fossil Fuel Requirements[a] for Electrical Energy Production Western Coal[b] (Steam) – 1000's Tons

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR[c]	--	--	--	--	--	--	--	--	--	--	--
ERCOT	22158	20599	20996	21378	22403	22466	24197	23897	24638	25310	25453
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	20637	20014	20675	21492	21719	24687	25356	26471	27307	27605	27080
Cmnwlth Edison	7590	5975	6860	7355	7195	8300	8800	9255	9525	9845	9180
East Missouri	1654	1812	1952	1996	1951	2499	2599	2573	2983	2936	2986
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	11393	12227	11863	12141	12573	13888	13957	14643	14799	14824	14914
MAPP	35711	35565	36868	37193	36833	37681	37725	37240	38249	38927	39228
NPCC	11166	12252	12155	12330	12795	12995	13005	12855	12913	13048	13125
New York	11166	12252	12155	12330	12795	12995	13005	12855	12913	13048	13125
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	4213	3887	3942	3738	3722	4002	4173	3728	3838	3922	3922
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4213	3887	3942	3738	3722	4002	4173	3728	3838	3922	3922
SPP	69373	66173	69202	69925	70885	72828	72669	74679	76011	77131	78158
Southeast	23118	21417	21963	22980	23580	23644	23686	24032	23995	24994	24911
West Central	25282	24185	25927	25366	25926	26680	27332	28042	29199	29296	29683
Northern	20973	20571	21312	21579	21379	22504	21651	22605	22817	22841	23564
WSCC[d]	101558	95904	95980	98451	100847	101528	101193	100601	101891	103030	104620
NW Pool	42104	41974	41936	42304	42507	42557	42557	42784	42472	42602	42952
Rocky Mt Area	18848	17099	17538	18802	19248	19520	18756	18720	19237	19603	20076
Ariz-N. Mex[d]	23089	21796	21815	22140	23793	23891	24416	24214	24729	25207	26048
Calif-So. Nev	17517	15035	14691	15205	15299	15560	15464	14883	15453	15618	15544
TOTAL(U.S.)[d]	264816	254394	259818	264507	269204	276187	278318	279471	284847	288973	291586
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	2916	3500	3592	2579	2456	2359	2449	2450	2450	2450	2450
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario[e]	2916	3500	3592	2579	2456	2359	2449	2450	2450	2450	2450
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	23635	23517	24565	25922	26857	27421	28066	28510	29376	30380	31282
TOTAL(Canada)	26551	27017	28157	28501	29313	29780	30515	30960	31826	32830	33732
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	291367	281411	287975	293008	298517	305967	308833	310431	316673	321803	325318

[a] Excludes the coal requirements of non-utility generators (NUGs).

[b] Coal mined west of the Mississippi River.

[c] Coal sources for ECAR are not identified. See Table 24 for ECAR coal figures.

[d] Includes coal requirements for the 360 MW Springerville 1 coal-fired non-utility generator in the Arizona-New Mexico Power Area of WSCC-U.S.

[e] Coal from western Canada.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production
Other Coal (Steam) – 1000's Tons
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR[b]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	41599	39676	38770	37693	38639	39654	39388	40515	41488	41338	42319
MAIN	32339	31668	31836	32310	33230	32280	32992	33414	32890	33146	34433
Cmnwlth Edison	2405	2475	2385	2555	2515	2385	2630	2440	2690	2735	3215
East Missouri	8882	9340	9070	8875	9525	9225	9020	9930	9475	9335	9925
S Cent Illinois	14931	14287	14383	14337	14592	14906	15304	15314	14932	15157	15458
Wis-Upper Mich	6121	5566	5998	6543	6598	5764	6038	5730	5793	5919	5835
MAPP	3611	3401	3671	3542	3467	3642	3669	3627	3868	3898	3883
NPCC	6275	5939	6192	6174	5997	6239	6239	6239	6239	6239	6239
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	6275	5939	6192	6174	5997	6239	6239	6239	6239	6239	6239
SERC	135883	136732	141405	143515	145002	146433	149269	151582	157903	161596	164873
Florida	19874	23018	23197	23263	23299	23301	23501	23456	25686	26004	26102
Southern	48183	46908	49082	50046	52007	51978	52073	54223	56537	57577	60626
TVA	34999	33707	34402	34356	33399	33089	33472	33452	33906	34131	34834
VACAR	32827	33099	34724	35850	36297	38065	40223	40451	41774	43884	43311
SPP	3703	3104	3167	3352	3873	3637	4420	4527	4654	4692	4865
Southeast	1	5	5	5	5	5	5	5	5	5	5
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	3702	3099	3162	3347	3868	3632	4415	4522	4649	4687	4860
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	223410	220520	225041	226586	230208	231885	235977	239904	247042	250909	256612
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	12399	12424	11669	11985	9880	10997	12232	11049	13324	14216	16997
New Brunswick[c]	747	533	521	547	519	740	1704	2321	2346	2586	3477
Nova Scotia[c]	2497	2705	2730	2877	3005	3204	3814	3991	4229	4324	4552
Ontario[d]	9155	9186	8418	8561	6356	7053	6714	4737	6749	7306	8968
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	12399	12424	11669	11985	9880	10997	12232	11049	13324	14216	16997
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	235809	232944	236710	238571	240088	242882	248209	250953	260366	265125	273609

[a] Excludes the coal requirements of non-utility generators (NUGs).

[b] Coal sources for ECAR are not identified. See Table 24 for ECAR total coal figures.

[c] Coal from Canada.

[d] Bituminous coal from the United States.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production Total Distillate Oil[b,c] – 1000's Barrels

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1900	3579	4094	3054	2342	2580	3260	3481	3797	4260	5275
ERCOT	639	667	713	680	708	720	723	696	705	689	688
MAAC	4783	2248	1488	1356	1245	1474	1631	1528	1666	2078	2457
MAIN	863	471	522	615	563	702	693	673	783	1014	1192
Cmnwlth Edison	418	5	15	25	25	55	105	95	140	270	365
East Missouri	103	158	172	317	259	377	326	303	357	434	525
S Cent Illinois	130	139	150	156	150	147	150	161	171	194	186
Wis-Upper Mich	212	169	185	117	129	123	112	114	115	116	116
MAPP	404	390	441	771	1114	1653	1181	806	942	948	1125
NPCC	3829	3050	2725	2857	1919	2758	3125	3389	3599	3910	4145
New York	1946	1668	1489	1497	230	303	306	333	324	444	493
NEPOOL	1883	1382	1236	1360	1689	2455	2819	3056	3275	3466	3652
SERC	2936	1550	2195	2291	2831	2855	2637	4150	5283	8284	13050
Florida	1107	317	936	1052	1610	1607	1328	2132	2581	4771	8564
Southern	456	290	309	295	321	340	306	300	305	300	301
TVA	474	372	383	379	370	377	465	937	1649	1958	2389
VACAR	899	571	567	565	530	531	538	781	748	1255	1796
SPP	642	666	756	845	891	908	919	908	939	1036	1340
Southeast	76	44	44	45	41	41	42	40	59	129	424
West Central	93	86	87	87	87	87	87	87	98	120	119
Northern	473	536	625	713	763	780	790	781	782	787	797
WSCC	328	523	589	713	728	729	928	989	1034	1238	1274
NW Pool	6	0	66	72	72	72	72	72	72	72	72
Rocky Mt Area	27	28	28	36	36	37	37	39	40	40	41
Ariz-N. Mex	147	34	34	148	163	172	335	401	405	590	620
Calif-So. Nev	148	461	461	457	457	448	484	477	517	536	541
TOTAL(U.S.)	16324	13144	13523	13182	12341	14379	15097	16620	18748	23457	30546
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	338	394	385	389	376	361	359	361	375	396	429
New Brunswick	36	13	18	44	7	17	3	9	11	13	4
Nova Scotia	86	80	64	68	81	83	95	94	106	103	110
Ontario	216	301	303	277	288	261	261	258	258	280	315
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	338	394	385	389	376	361	359	361	375	396	429
NERC-Mexico											
WSCC	54	638	76	0	0	0	0	0	0	0	0
TOTAL(Mexico)	54	638	76	0	0	0	0	0	0	0	0
NERC-Total	16716	14176	13984	13571	12717	14740	15456	16981	19123	23853	30975

[a] Excludes the distillate oil requirements of non-utility generators (NUGs).

[b] Includes No.1 and No.2 oil, kerosene, and jet fuel.

[c] Used in steam, combustion turbine (and diesel), and combined cycle units and in coal burning plants for startup and flame stabilization.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production Distillate Oil[b] (Steam) - 1000's Barrels

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1615	1700	1500	1400	1200	1200	1450	1300	1300	1300	1310
ERCOT	469	551	539	545	546	545	545	545	546	545	545
MAAC	1332	180	208	251	265	300	297	289	301	329	325
MAIN	602	399	413	416	443	562	477	497	518	563	628
Cmnwlth Edison	276	0	0	0	0	0	0	0	0	0	0
East Missouri	69	129	132	181	212	333	243	269	278	315	388
S Cent Illinois	130	117	130	135	129	125	130	123	134	142	134
Wis-Upper Mich	127	153	151	100	102	104	104	105	106	106	106
MAPP	229	226	221	230	236	247	254	260	253	267	290
NPCC	225	232	187	147	167	173	197	213	229	242	255
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	225	232	187	147	167	173	197	213	229	242	255
SERC	1481	1209	1200	1222	1195	1201	1138	1158	1178	1266	1276
Florida	453	81	86	85	91	91	90	99	101	123	150
Southern	320	276	278	279	280	281	282	282	283	283	284
TVA	254	364	373	372	362	358	361	360	365	367	374
VACAR	454	488	463	486	462	471	405	417	429	493	468
SPP	315	284	299	304	296	297	303	300	333	362	403
Southeast	76	44	44	45	41	41	42	40	59	68	108
West Central	92	86	86	86	86	86	86	86	97	118	118
Northern	147	154	169	173	169	170	175	174	177	176	177
WSCC	182	54	54	174	174	174	354	354	354	606	606
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	27	24	24	30	30	30	30	30	30	30	30
Ariz-N. Mex	147	30	30	144	144	144	324	324	324	576	576
Calif-So. Nev	8	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	6450	4835	4621	4689	4522	4699	5015	4916	5012	5480	5638
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	197	257	259	233	244	217	217	220	220	230	240
New Brunswick	22	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	175	257	259	233	244	217	217	220	220	230	240
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	197	257	259	233	244	217	217	220	220	230	240
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	6647	5092	4880	4922	4766	4916	5232	5136	5232	5710	5878

[a] See page 110, footnote a.
[b] See page 110, footnote b.

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Regional Fossil Fuel Requirements[a] for Electric Energy Production Distillate Oil[b] (Combustion Turbine)[c] – 1000's Barrels

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	285	1879	2594	1654	1142	1380	1550	1721	2027	2460	3385
ERCOT	170	116	174	135	162	175	178	151	159	144	143
MAAC	3046	1857	1092	952	855	1026	1172	1073	1233	1548	1903
MAIN	261	72	109	199	120	140	216	176	265	451	564
Cmnwlth Edison	142	5	15	25	25	55	105	95	140	270	365
East Missouri	34	29	40	136	47	44	83	34	79	119	137
S Cent Illinois	0	22	20	21	21	22	20	38	37	52	52
Wis-Upper Mich	85	16	34	17	27	19	8	9	9	10	10
MAPP	155	147	203	524	861	1389	910	529	672	664	818
NPCC	2881	2393	2127	2239	1155	1776	2008	2178	2300	2536	2698
New York	1946	1668	1489	1497	230	303	306	333	324	444	493
NEPOOL	935	725	638	742	925	1473	1702	1845	1976	2092	2205
SERC	1437	327	972	1044	1602	1617	1464	2907	4034	6927	11565
Florida	641	227	832	948	1491	1485	1210	1955	2416	4564	8212
Southern	136	14	31	16	41	59	24	18	22	17	17
TVA	220	8	10	7	8	19	104	577	1284	1591	2015
VACAR	440	78	99	73	62	54	126	357	312	755	1321
SPP	327	382	457	541	595	611	616	608	606	674	937
Southeast	0	0	0	0	0	0	0	0	0	61	316
West Central	1	0	1	1	1	1	1	1	1	2	1
Northern	326	382	456	540	594	610	615	607	605	611	620
WSCC	141	469	535	539	549	546	572	606	631	630	659
NW Pool	6	0	66	72	72	72	72	72	72	72	72
Rocky Mt Area	0	4	4	6	6	7	7	9	10	10	11
Ariz-N. Mex	0	4	4	4	14	19	9	48	32	12	35
Calif-So. Nev	135	461	461	457	457	448	484	477	517	536	541
TOTAL(U.S.)	8703	7642	8263	7827	7041	8660	8686	9949	11927	16034	22672
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	141	137	126	156	132	144	142	141	155	166	189
New Brunswick	14	13	18	44	7	17	3	9	11	13	4
Nova Scotia	86	80	64	68	81	83	95	94	106	103	110
Ontario	41	44	44	44	44	44	44	38	38	50	75
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	141	137	126	156	132	144	142	141	155	166	189
NERC-Mexico											
WSCC	54	638	76	0	0	0	0	0	0	0	0
TOTAL(Mexico)	54	638	76	0	0	0	0	0	0	0	0
NERC-Total	8898	8417	8465	7983	7173	8804	8828	10090	12082	16200	22861

[a] See page 110, footnote a.

[b] See page 110, footnote b.

[c] Includes diesel units.

Regional Fossil Fuel Requirements[a] for Electrical Energy Production Distillate Oil[b] (Combined Cycle) – 1000's Barrels

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	260	460	470	500	580
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	405	211	188	153	125	148	162	166	132	201	229
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	20	17	17	17	17	17	17	17	17	17	17
NPCC	723	425	411	471	597	809	920	998	1070	1132	1192
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	723	425	411	471	597	809	920	998	1070	1132	1192
SERC	18	14	23	25	34	37	35	85	71	91	209
Florida	13	9	18	19	28	31	28	78	64	84	202
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	5	5	5	6	6	6	7	7	7	7	7
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	5	0	0	0	5	9	2	29	49	2	9
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	5	9	2	29	49	2	9
Calif-So. Nev	5	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	1171	667	639	666	778	1020	1396	1755	1809	1943	2236
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	1171	667	639	666	778	1020	1396	1755	1809	1943	2236

[a] See page 110, footnote a.
[b] See page 110, footnote b.

Regional Fossil Fuel Requirements[a] for Electrical Energy Production
Total Residual Oil[b,c] – 1000's Barrels
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	3085	4460	4370	3800	3730	3965	4385	4755	5070	5540	6530
ERCOT	596	720	725	674	674	685	674	674	674	663	663
MAAC	29123	28547	24525	23480	18641	20485	20871	25141	27725	30644	35140
MAIN	2221	594	722	878	1128	1656	2253	2341	2841	4333	4757
Cmnwlth Edison	1815	410	555	750	975	1485	2080	2105	2600	4020	4425
East Missouri	211	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	195	184	167	128	153	171	173	236	241	313	332
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	100	47	48	49	52	55	52	65	72	108	75
NPCC	123971	126965	108179	86151	87028	90739	97388	100970	103876	108854	115015
New York	63495	64758	57923	46728	42073	44157	44440	43492	42346	43681	46065
NEPOOL	60476	62207	50256	39423	44955	46582	52948	57478	61530	65173	68950
SERC	43821	28082	34491	36532	40076	41499	43791	52283	52693	61151	72255
Florida	39646	23229	29022	31287	35007	38328	40119	48003	47717	55300	64495
Southern	152	191	135	17	129	127	87	87	143	149	246
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4023	4662	5334	5228	4940	3044	3585	4193	4833	5702	7514
SPP	505	539	101	127	397	601	939	746	1670	1215	2259
Southeast	439	476	13	2	258	447	762	552	1438	926	1970
West Central	1	11	11	11	11	11	11	11	22	44	44
Northern	65	52	77	114	128	143	166	183	210	245	245
WSCC	13193	2743	2078	1517	1683	1706	1754	1720	2231	1823	2094
NW Pool	727	0	30	32	32	32	32	32	32	32	32
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	150	150	256	278	278	294	375	501	261	336
Calif-So. Nev	12466	2593	1898	1229	1373	1396	1428	1313	1698	1530	1726
TOTAL(U.S.)	216615	192697	175239	153208	153409	161391	172107	188695	196852	214331	238788
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	12107	12253	13377	12375	8840	9410	6884	7743	7583	7318	5602
New Brunswick	8918	8879	9159	8381	5297	5995	5069	6079	6270	5907	4488
Nova Scotia	2421	2651	3566	3805	3421	3294	1694	1525	1164	1222	822
Ontario	768	723	652	189	122	121	121	139	149	189	292
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	12107	12253	13377	12375	8840	9410	6884	7743	7583	7318	5602
NERC-Mexico											
WSCC	1899	1916	3267	3366	3424	3341	3984	4676	5429	6221	7081
TOTAL(Mexico)	1899	1916	3267	3366	3424	3341	3984	4676	5429	6221	7081
NERC-Total	230621	206866	191883	168949	165673	174142	182975	201114	209864	227870	251471

[a] Excludes the residual oil requirements of non-utility generators (NUGs).

[b] Includes No.4, No.5, and No.6 fuel oil.

[c] Used in steam, combustion turbine (and diesel), and combined cycle units.

Regional Fossil Fuel Requirements[a] for Electrical Energy Production
Residual Oil[b] (Steam) – 1000's Barrels
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	2800	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
ERCOT	596	720	725	674	674	685	674	674	674	663	663
MAAC	29123	28547	24525	23480	18641	20485	20871	25141	27725	30644	35140
MAIN	2221	594	722	878	1128	1656	2253	2341	2841	4333	4757
Cmnwlth Edison	1815	410	555	750	975	1485	2080	2105	2600	4020	4425
East Missouri	211	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	195	184	167	128	153	171	173	236	241	313	332
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	100	47	48	47	50	53	48	61	66	100	65
NPCC	123771	126844	108063	86023	86862	90518	97136	100697	103583	108544	114689
New York	63495	64758	57923	46728	42073	44157	44440	43492	42346	43681	46065
NEPOOL	60276	62086	50140	39295	44789	46361	52696	57205	61237	64863	68624
SERC	43692	27695	33816	35841	39186	40549	43021	51384	51740	59704	70382
Florida	39517	22842	28347	30596	34117	37378	39349	47104	46764	53853	62622
Southern	152	191	135	17	129	127	87	87	143	149	246
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4023	4662	5334	5228	4940	3044	3585	4193	4833	5702	7514
SPP	505	539	101	127	397	601	939	746	1670	1215	2259
Southeast	439	476	13	2	258	447	762	552	1438	926	1970
West Central	1	11	11	11	11	11	11	11	22	44	44
Northern	65	52	77	114	128	143	166	183	210	245	245
WSCC	13193	2731	2066	1511	1677	1700	1748	1714	2225	1817	2088
NW Pool	727	0	30	32	32	32	32	32	32	32	32
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	150	150	256	278	278	294	375	501	261	336
Calif-So. Nev	12466	2581	1886	1223	1367	1390	1422	1307	1692	1524	1720
TOTAL(U.S.)	216001	190317	172666	151181	151215	158847	169290	185358	193124	209620	232643
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	12107	12253	13377	12375	8840	9410	6884	7743	7583	7318	5602
New Brunswick	8918	8879	9159	8381	5297	5995	5069	6079	6270	5907	4488
Nova Scotia	2421	2651	3566	3805	3421	3294	1694	1525	1164	1222	822
Ontario	768	723	652	189	122	121	121	139	149	189	292
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	12107	12253	13377	12375	8840	9410	6884	7743	7583	7318	5602
NERC-Mexico											
WSCC	1899	1916	3267	3366	3424	3341	3984	4676	5429	6221	7081
TOTAL(Mexico)	1899	1916	3267	3366	3424	3341	3984	4676	5429	6221	7081
NERC-Total	230007	204486	189310	166922	163479	171598	180158	197777	206136	223159	245326

[a] See page 114, footnote a.
[b] See page 114, footnote b.

Regional Fossil Fuel Requirements[a] for Electrical Energy Production Residual Oil[b] (Combustion Turbine)[c] – 1000's Barrels

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	285	1860	1770	1200	1130	1365	1530	1700	2000	2440	3350
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	2	2	2	4	4	6	8	10
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	129	123	357	376	551	615	434	583	630	1113	1505
Florida	129	123	357	376	551	615	434	583	630	1113	1505
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	414	1983	2127	1578	1683	1982	1968	2287	2636	3561	4865
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	414	1983	2127	1578	1683	1982	1968	2287	2636	3561	4865

[a] See page 114, footnote a.

[b] See page 114, footnote b.

[c] Includes diesel units.

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Regional Fossil Fuel Requirements[a] For Electrical Energy Production Residual Oil[b] (Combined Cycle) - 1000's Barrels

(1989-1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	255	455	470	500	580
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	200	121	116	128	166	221	252	273	293	310	326
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	200	121	116	128	166	221	252	273	293	310	326
SERC	0	264	318	315	339	335	336	316	323	334	368
Florida	0	264	318	315	339	335	336	316	323	334	368
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	12	12	6	6	6	6	6	6	6	6
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	12	12	6	6	6	6	6	6	6	6
TOTAL(U.S.)	200	397	446	449	511	562	849	1050	1092	1150	1280
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	200	397	446	449	511	562	849	1050	1092	1150	1280

[a] See page 114, footnote a.

[b] See page 114, footnote b.

Regional Fossil Fuel Requirements[a] for Electrical Energy Production
Total Crude Oil (Steam) - 1000's Barrels
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
Florida	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	0	0	0	0	0	0	0	0	0	0
Calif-So. Nev	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	0	0	0	0	0	0	0	0	0	0	0
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	559	3179	3336	3120	3202	3368	3388	3324
New Brunswick	0	0	0	559	3179	3336	3120	3202	3368	3388	3324
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	559	3179	3336	3120	3202	3368	3388	3324
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	0	0	0	559	3179	3336	3120	3202	3368	3388	3324

[a] Excludes the crude oil requirements of non-utility generators (NUGs).

Regional Fossil Fuel Requirements[a] for Electrical Energy Production
Total Firm Natural Gas[b] - 1000 MCF
(1989-1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	808525	799601	721029	706336	723329	780881	773337	770795	798995	777553	783858
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	4211	1239	1047	1213	1302	1718	2502	2292	2763	4245	4631
Cmnwlth Edison	3747	690	200	295	355	710	1385	1220	1740	3250	3650
East Missouri	18	75	75	131	131	131	131	131	131	131	131
S Cent Illinois	31	24	322	337	366	427	536	491	442	414	400
Wis-Upper Mich	415	450	450	450	450	450	450	450	450	450	450
MAPP	2589	3881	3535	6051	8883	11044	14125	14497	22495	22310	22402
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	17521	10962	11477	11819	11663	9947	15773	19054	19890	22180	27379
Florida[c]	5848	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Southern	9270	10838	10962	11314	11332	9240	14785	15569	17184	18229	21213
TVA	1	2	44	36	34	305	413	2019	2253	2485	3082
VACAR	2402	122	471	469	297	402	575	1466	453	1466	3084
SPP	292780	271007	286022	284413	291297	307263	324862	343331	349108	363659	377302
Southeast	69434	59537	66915	72663	72199	73725	74196	73697	74999	74507	76719
West Central	217480	204254	211020	202542	210945	224944	240207	260603	263563	277236	290776
Northern	5866	7216	8087	9208	8153	8594	10459	9031	10546	11916	9807
WSCC[d]	590033	409084	348080	319911	373525	369771	416479	454597	476803	483292	534366
NW Pool	4028	7330	6892	7013	7363	7191	6666	6286	6405	6666	6666
Rocky Mt Area[d]	5472	3698	3481	3904	4079	4376	21380	26592	26592	28408	29399
Ariz-N. Mex	50225	52469	31882	32044	38634	40241	45014	52727	48893	53000	66335
Calif-So. Nev	530308	345587	305825	276950	323449	317963	343419	368992	394913	395218	431966
TOTAL(U.S.)[d]	1715659	1495774	1371190	1329743	1409999	1480624	1547078	1604566	1670054	1673239	1749938
NERC-Canada											
MAPP	7523	6027	3656	3691	2946	2272	2591	2981	4721	3158	3762
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	24610	36397	25190	18346	15635	22227	32263	38834	42497	43164	46302
TOTAL(Canada)	32133	42424	28846	22037	18581	24499	34854	41815	47218	46322	50064
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total[d]	1747792	1538198	1400036	1351780	1428580	1505123	1581932	1646381	1717272	1719561	1800002

[a] Excludes the firm natural gas requirements on non-utility generators (NUGs).

[b] Used in steam, combustion turbine (and diesel), and combined cycle units.

[c] Does not distinguish between firm and interruptible natural gas. All natural gas projections are reported as interruptible natural gas. See Appendix C pages 123 through 126 and Table 28 for SERC (Florida) natural gas figures.

[d] Includes the natural gas requirements for the 330 MW Fort St. Vrain gas-fired NUG unit in the Rocky Mountain Power Area of WSCC-U.S.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production
Firm Natural Gas (Steam) – 1000 MCF
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	765590	765666	687692	676973	694114	745548	729078	721224	731156	704703	705432
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	4000	1101	799	874	894	562	562	562	562	562	562
Cmnwlth Edison	3567	595	0	0	0	0	0	0	0	0	0
East Missouri	18	56	56	112	112	112	112	112	112	112	112
S Cent Illinois	0	0	293	312	332	0	0	0	0	0	0
Wis-Upper Mich	415	450	450	450	450	450	450	450	450	450	450
MAPP	2307	3479	3187	4529	6641	7255	7164	5491	6983	8329	7046
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	11853	7007	7131	7387	7420	5301	4774	6476	7179	8161	8995
Florida[b]	4254	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Southern	5959	7007	7131	7387	7420	5301	4774	6476	7179	8161	8995
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	1640	0	0	0	0	0	0	0	0	0	0
SPP	269601	241067	257662	253867	261475	274668	291659	308319	316357	327217	340143
Southeast	69434	59537	66915	72663	72199	73725	74196	73697	74999	74507	76719
West Central	194489	174508	182875	172249	181385	192636	207414	226406	231712	241811	254749
Northern	5678	7022	7872	8955	7891	8307	10049	8216	9646	10899	8675
WSCC[c]	546369	376033	323208	291641	344067	336442	376395	411822	432260	428471	467950
NW Pool	4028	7330	6892	7013	7363	7191	6666	6286	6405	6666	6666
Rocky Mt Area[c]	5341	3632	3415	3837	4012	4309	21313	26525	26525	26525	26525
Ariz-N. Mex	28494	27112	15108	13804	19892	19879	21809	27042	22859	24201	28838
Calif-So. Nev	508506	337959	297793	266987	312800	305063	326607	351969	376471	371079	405921
TOTAL(U.S.)[c]	1599720	1394353	1279679	1235271	1314611	1369776	1409632	1453894	1494497	1477443	1530128
NERC-Canada											
MAPP	6501	4221	2414	2200	1207	994	1136	1100	1278	958	1100
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	17766	30220	20751	14596	11983	18247	26611	31104	32854	32996	34013
TOTAL(Canada)	24267	34441	23165	16796	13190	19241	27747	32204	34132	33954	35113
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total[c]	1623987	1428794	1302844	1252067	1327801	1389017	1437379	1486098	1528629	1511397	1565241

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[a] See page 119, footnote a.
[b] See page 119, footnote c.
[c] See page 119, footnote d.

Regional Fossil Fuel Requirements[a] for Electrical Energy Production
Firm Natural Gas (Combustion Turbine)[b] – 1000 MCF
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	1539	1403	1718	1829	2272	1937	3477	3945	3849	3799	5981
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	211	138	248	339	408	739	1423	1280	1801	3308	3719
Cmnwlth Edison	180	95	200	295	355	710	1385	1220	1740	3250	3650
East Missouri	0	19	19	19	19	19	19	19	19	19	19
S Cent Illinois	31	24	29	25	34	10	19	41	42	39	50
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	282	402	348	1522	2242	3789	6961	9006	15512	13981	15356
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	5122	3955	4346	4261	4055	4389	4802	7319	6476	7672	8631
Florida[c]	1048	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Southern	3311	3831	3831	3756	3724	3682	3814	3834	3770	3721	2465
TVA	1	2	44	36	34	305	413	2019	2253	2485	3082
VACAR	762	122	471	469	297	402	575	1466	453	1466	3084
SPP	800	272	263	273	282	27	30	420	38	38	38
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	612	78	48	20	20	20	20	20	28	28	28
Northern	188	194	215	253	262	7	10	400	10	10	10
WSCC	5675	2972	2164	2125	1920	1880	2870	3093	4107	8685	18534
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	131	66	66	67	67	67	67	67	67	1883	2874
Ariz-N. Mex	2188	1288	366	355	664	673	1371	1773	2938	5793	14625
Calif-So. Nev	3356	1618	1732	1703	1189	1140	1432	1253	1102	1009	1035
TOTAL(U.S.)	13629	9142	9087	10349	11179	12761	19563	25063	31783	37483	52259
NERC-Canada											
MAPP	1022	1806	1242	1491	1739	1278	1455	1881	3443	2200	2662
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	6844	6177	4439	3750	3652	3980	5652	7730	9643	10168	12289
TOTAL(Canada)	7866	7983	5681	5241	5391	5258	7107	9611	13086	12368	14951
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	21495	17125	14768	15590	16570	18019	26670	34674	44869	49851	67210

[a] See page 119, footnote a.

[b] Includes diesel units.

[c] See page 119, footnote c.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production
Firm Natural Gas (Combined Cycle) – 1000 MCF
(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	41396	32532	31619	27534	26943	33396	40782	45626	63990	69051	72445
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	417	517	450	400	375	350
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	417	517	450	400	375	350
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	546	0	0	171	188	257	6197	5259	6235	6347	9753
Florida[b]	546	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Southern	0	0	0	171	188	257	6197	5259	6235	6347	9753
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	22379	29668	28097	30273	29540	32568	33173	34592	32713	36404	37121
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	22379	29668	28097	30273	29540	32288	32773	34177	31823	35397	35999
Northern	0	0	0	0	0	280	400	415	890	1007	1122
WSCC	37989	30079	22708	26145	27538	31449	37214	39682	40436	46136	47882
NW Pool	0	0	0	0	0	0	0	0	0	0	0
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	19543	24069	16408	17885	18078	19689	21834	23912	23096	23006	22872
Calif-So. Nev	18446	6010	6300	8260	9460	11760	15380	15770	17340	23130	25010
TOTAL(U.S.)	102310	92279	82424	84123	84209	98087	117883	125609	143774	158313	167551
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	102310	92279	82424	84123	84209	98087	117883	125609	143774	158313	167551

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[a] See page 119, footnote a.

[b] See page 119, footnote c.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production Total Interruptible Natural Gas[b,c] – 1000 MCF

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	12480	9890	8240	4530	3530	3260	14620	18690	29780	34330	47100
ERCOT	66428	24049	43333	35211	37235	36282	36333	36901	38387	42329	41824
MAAC	66165	64385	59057	53946	44426	54206	63007	70389	82043	96088	112005
MAIN	3041	2227	2306	3377	4219	5230	4788	5820	5921	7176	8602
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	599	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	856	507	460	830	715	566	566	835	828	1125	1224
Wis-Upper Mich	1586	1720	1846	2547	3504	4664	4222	4985	5093	6051	7378
MAPP	9221	20504	33960	27999	28029	28879	30085	29675	44381	34465	24633
NPCC	168796	150231	160711	163863	166335	170454	174559	175256	175907	176474	177029
New York	147030	130350	140600	142800	143500	145300	148400	148400	148400	148400	148400
NEPOOL	21766	19881	20111	21063	22835	25154	26159	26856	27507	28074	28629
SERC	97267	213845	221572	216125	227738	238114	233267	237839	239228	241015	243290
Florida[d]	92575	210687	214789	207386	210712	219978	215708	219997	220607	220049	220094
Southern	3770	2960	2184	1138	2596	2742	1853	2161	3038	3520	5384
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	922	198	4599	7601	14430	15394	15706	15681	15583	17446	17812
SPP	320787	354949	345669	319550	330202	330008	333140	359368	366663	387556	407041
Southeast	300954	339392	327783	300663	312656	310986	308728	333862	335019	353115	374276
West Central	10641	7857	9075	9416	8711	7858	8659	8618	8999	10002	9782
Northern	9192	7700	8811	9471	8835	11164	15753	16888	22645	24439	22983
WSCC	4163	52652	75170	83837	90839	93498	102644	122649	132732	161072	154848
NW Pool	1599	10487	30235	30272	30452	30419	31268	31211	31409	31268	31268
Rocky Mt Area	2564	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	5556	4016	4007	4091	4603	5259	8346	9704	12346	13764
Calif-So. Nev	0	36609	40919	49558	56296	58476	66117	83092	91619	117458	109816
TOTAL(U.S.)	748348	892732	950018	908438	932553	959931	992443	1056587	1115042	1180505	1216372
NERC-Canada											
MAPP	15	3102	9	9	9	9	9	9	9	9	9
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	761	0	336	6923	13573	13573	29744	14534	24044	30684	30694
TOTAL(Canada)	776	3102	345	6932	13582	13582	29753	14543	24053	30693	30703
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	749124	895834	950363	915370	946135	973513	1022196	1071130	1139095	1211198	1247075

[a] Excludes the interruptible natural gas requirements of non-utility generators (NUGs).

[b] Interruptible by contractual agreement.

[c] Used in steam, combustion turbine (and diesel), and combined cycle units.

[d] See page 119, footnote c.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production Interruptible Natural Gas[b] (Steam) – 1000 MCF

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	11020	6120	4710	2130	600	600	9800	9500	18900	16400	27500
ERCOT	57323	10869	30605	22082	22811	22168	21191	22717	23717	23797	20663
MAAC	47296	41238	34654	33633	26727	29522	31304	35842	39494	43401	49432
MAIN	2157	1139	1066	1664	1544	1676	1648	1287	1301	1492	1561
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	571	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	776	327	310	691	525	382	372	524	524	702	745
Wis-Upper Mich	810	812	756	973	1019	1294	1276	763	777	790	816
MAPP	7934	18470	31491	26201	26012	26831	24693	25206	38169	27449	16687
NPCC	154907	137952	147984	150637	151803	153970	156884	156884	156884	156884	156884
New York	140235	122529	132164	134232	134890	136582	139496	139496	139496	139496	139496
NEPOOL	14672	15423	15820	16405	16913	17388	17388	17388	17388	17388	17388
SERC	33618	189545	191782	183627	185705	198732	191758	198525	200287	196618	198196
Florida[c]	29662	186491	189493	182398	183068	195952	190305	197041	198222	194450	195515
Southern	3563	2951	2138	1118	2549	2663	1302	1416	1800	2006	2479
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	393	103	151	111	88	117	151	68	265	162	202
SPP	318558	349970	341802	316093	326970	325362	328025	354243	359141	378807	399584
Southeast	299991	334909	324691	298029	310321	307975	305848	331402	332183	349562	370819
West Central	10402	7814	9045	9368	8629	7436	7736	7913	8259	8978	8812
Northern	8165	7247	8066	8696	8020	9951	14441	14928	18699	20267	19953
WSCC	2564	38017	42121	50227	56886	56927	56981	56055	49988	52885	49663
NW Pool	0	0	0	0	0	147	996	939	957	996	996
Rocky Mt Area	2564	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	4044	3838	3829	3914	3949	4228	5065	5283	5544	5903
Calif-So. Nev	0	33973	38283	46398	52972	52831	51757	50051	43748	46345	42764
TOTAL(U.S.)	635377	793320	826215	786294	799058	815788	822284	860259	887881	897733	920170
NERC-Canada											
MAPP	15	3102	9	9	9	9	9	9	9	9	9
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	761	0	0	6650	13300	13300	29450	14250	23750	30400	30400
TOTAL(Canada)	776	3102	9	6659	13309	13309	29459	14259	23759	30409	30409
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	636153	796422	826224	792953	812367	829097	851743	874518	911640	928142	950579

[a] See page 123, footnote a.
[b] See page 123, footnote b.
[c] See page 119, footnote c.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production Interruptible Natural Gas[b] (Combustion Turbine)[c] – 1000 MCF

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	1460	3770	3530	2400	2400	2400	4250	8450	9200	16250	17600
ERCOT	3382	3625	5637	4605	5998	6680	6828	5409	5818	5073	5007
MAAC	12794	12501	14908	12598	11364	9735	10953	13169	16228	18135	18925
MAIN	884	1088	1240	1713	2675	3554	3140	4533	4620	5684	7041
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	28	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	80	180	150	139	190	184	194	311	304	423	479
Wis-Upper Mich	776	908	1090	1574	2485	3370	2946	4222	4316	5261	6562
MAPP	1269	1925	2451	1779	1997	2027	2255	2564	3525	3608	4046
NPCC	7233	8259	8874	9006	9048	9156	9342	9342	9342	9342	9342
New York	6795	7821	8436	8568	8610	8718	8904	8904	8904	8904	8904
NEPOOL	438	438	438	438	438	438	438	438	438	438	438
SERC	61698	1651	3295	3628	5482	1849	4743	4360	3538	6628	6174
Florida[d]	61010	1547	3067	3354	5136	1645	3722	2390	1959	4842	2977
Southern	207	9	46	20	47	79	551	745	1238	1514	2905
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	481	95	182	254	299	125	470	1225	341	272	292
SPP	1115	485	749	796	858	1600	2167	2340	4349	4842	3645
Southeast	0	0	0	0	0	0	0	0	0	0	0
West Central	239	43	30	48	82	422	923	705	740	1024	970
Northern	876	442	719	748	776	1178	1244	1635	3609	3818	2675
WSCC	1599	8972	10874	11590	11889	10819	9827	9827	10309	10797	11856
NW Pool	1599	6781	8683	8705	8824	8705	8705	8705	8824	8705	8705
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	178	178	178	177	654	654	654	654	1019	2078
Calif-So. Nev	0	2013	2013	2707	2888	1460	468	468	831	1073	1073
TOTAL(U.S.)	91434	42276	51558	48115	51711	47820	53505	59994	66929	80359	83636
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	336	273	273	273	294	284	294	284	294
TOTAL(Canada)	0	0	336	273	273	273	294	284	294	284	294
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	91434	42276	51894	48388	51984	48093	53799	60278	67223	80643	83930

[a] See page 123, footnote a.

[b] See paye 123, footnote b.

[c] Includes diesel units.

[d] See page 119, footnote c.

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Regional Fossil Fuel Requirements[a] for Electrical Energy Production Interruptible Natural Gas[b] (Combined Cycle) – 1000 MCF

(1989–1998 Forecast)

	ACTUAL	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NERC-U.S.											
ECAR	0	0	0	0	530	260	570	740	1680	1680	2000
ERCOT	5723	9555	7091	8524	8426	7434	8314	8775	8852	13459	16154
MAAC	6075	10646	9495	7715	6335	14949	20750	21378	26321	34552	43648
MAIN	0	0	0	0	0	0	0	0	0	0	0
Cmnwlth Edison	0	0	0	0	0	0	0	0	0	0	0
East Missouri	0	0	0	0	0	0	0	0	0	0	0
S Cent Illinois	0	0	0	0	0	0	0	0	0	0	0
Wis-Upper Mich	0	0	0	0	0	0	0	0	0	0	0
MAPP	18	109	18	19	20	21	3137	1905	2687	3408	3900
NPCC	6656	4020	3853	4220	5484	7328	8333	9030	9681	10248	10803
New York	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	6656	4020	3853	4220	5484	7328	8333	9030	9681	10248	10803
SERC	1951	22649	26495	28870	36551	37533	36766	34954	35403	37769	38920
Florida[c]	1903	22649	22229	21634	22508	22381	21681	20566	20426	20757	21602
Southern	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	48	0	4266	7236	14043	15152	15085	14388	14977	17012	17318
SPP	1114	4494	3118	2661	2374	3046	2948	2785	3173	3907	3812
Southeast	963	4483	3092	2634	2335	3011	2880	2460	2836	3553	3457
West Central	0	0	0	0	0	0	0	0	0	0	0
Northern	151	11	26	27	39	35	68	325	337	354	355
WSCC	0	5663	22175	22020	22064	25752	35836	56767	72435	97390	93329
NW Pool	0	3706	21552	21567	21628	21567	21567	21567	21628	21567	21567
Rocky Mt Area	0	0	0	0	0	0	0	0	0	0	0
Ariz-N. Mex	0	1334	0	0	0	0	377	2627	3767	5783	5783
Calif-So. Nev	0	623	623	453	436	4185	13892	32573	47040	70040	65979
TOTAL(U.S.)	21537	57136	72245	74029	81784	96323	116654	136334	160232	202413	212566
NERC-Canada											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
Ontario	0	0	0	0	0	0	0	0	0	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Canada)	0	0	0	0	0	0	0	0	0	0	0
NERC-Mexico											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(Mexico)	0	0	0	0	0	0	0	0	0	0	0
NERC-Total	21537	57136	72245	74029	81784	96323	116654	136334	160232	202413	212566

[a] See page 123, footnote a.
[b] See page 123, footnote b.
[c] See page 119, footnote c.

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Generating Unit Additions (Utility and Non-Utility)[a]
(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/01	ECAR		UN	DECO	One Facility	7	UN	UNK	P	ZZ	
89/01	MAAC		NJ	GPUS	WARREN CO. RR - NUG[e]	11	ST	REF	P	ZZ	
89/01	SERC	FL	FL	FOPC	H. D. King 9	22.5	GT	NG	V	U	
89/01	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	27	CG	UNK	P	CG	
89/01	WSCC	CNV	CA	PG&E	PVUSA 1	1	SO	SUN	U	U	
89/01	WSCC	CNV	CA	PG&E	QF COGENERATION 89	521	CG	UNK	P	CG	
89/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 89	51	GE	GST	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF HYDRO 89	44	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF SOLID WASTE/BIOMASS 89	104	ZZ	UNK	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF WIND 89	14	WM	WND	P	ZZ	
89/01	WSCC	NWP	ID	UPLC	ENERGENICS	2	HY	WAT	P	ZZ	
89/01	WSCC	NWP	UT	UPLC	LEHI COGEN	17	CG	NG	P	CG	
89/02	ECAR		UN	CP	One facility	17	UN	WD	P	ZZ	
89/02	MAAC		PA	GPUS	CATERPILLAR TRACTOR - NUG[e]	45	CW	NG	P	ZZ	
89/02	MAAC		PA	GPUS	CONEMAUGH DAM - NUG[e]	15	HY	WAT	P	ZZ	
89/02	NPCC	NE	CT	UNK	Derby Dan	6.16	HY	WAT	V	ZZ	
89/02	NPCC	NE	CT	UNK	WALLINGFORD REFUSE (CRRA)	9.2	ST	REF	V	ZZ	
89/02	NPCC	NE	MA	NEES	CLARK UNIVERSITY	0.18	IC	OIL	V	ZZ	
89/02	NPCC	NE	ME	CMP	United American Hydro(Kennebec)	17	HY	WAT	V	ZZ	
89/02	NPCC	NE	NH	REES	Mascoma Hydro	1.5	HY	WAT	V	ZZ	
89/02	NPCC	NE	VT	VTGP	Moratown 8	1.25	HY	WAT	V	ZZ	
89/02	SERC	FL	FL	FOPC	H. D. King 5	7.5	CW	WH	V	U	
89/02	WSCC	CNV	CA	SNCL	BLACK BUTTE DAM	6	HY	WAT	V	U	
89/02	WSCC	CNV	CA	SNCL	HIGH LINE CANAL	0	HY	WAT	V	U	
89/02	WSCC	RMP	CO	PSC	VALLECITO HYDRO	5	HY	WAT	V	ZZ	
89/02	WSCC	RMP	WY	PSC	SIMPSON RIDGE	2	WM	WND	V	ZZ	
89/03	MAAC		PA	GPUS	GLATFELTER 2 - NUG[e]	26	ST	ZZ	P	ZZ	
89/03	NPCC	NE	MA	BECO	Southboro Hydro	0.75	HY	WAT	V	ZZ	
89/03	NPCC	NE	MA	UNITIL	BAY STATE GAS	0.75	ZZ	GAS	V	ZZ	
89/03	NPCC	NE	ME	CMP	Worunbo - Miller Hydro	13.1	HY	WAT	V	ZZ	
89/03	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[f]	6	UN	REF	V	ZZ	
89/03	SERC	SOU	GA	GEPC	SCHERER UNIT 4	848	ST	BIT	V	U	
89/04	NPCC	NE	VT	VTGP	Springfield	0.4	HY	WAT	V	ZZ	
89/04	WSCC	AZN	NM	LAC	ABIQUIU 1	7	HY	WAT	V	U	
89/04	WSCC	AZN	NM	LAC	ABIQUIU 2	7	HY	WAT	V	U	
89/04	WSCC	NWP	MT	MPC	BROADWATER DAM	10	HY	WAT	P	ZZ	
89/05	MAAC		DE	DPLC	HAY ROAD 2	104	GT	NG	V	U	
89/05	MAAC		MD	DPLC	EASTON 23-24	12.6	IC	FO2	V	U	
89/05	MAAC		NJ	GPUS	FORKED ROVER CTS 1,2	70	GT	FO2	U	U	
89/05	MAAC		NJ	GPUS	MARCAL PAPER - NUG[e]	45	GT	NG	P	ZZ	
89/05	MAAC		NJ	GPUS	RIEGEL PAPER - NUG[e]	33	GT	NG	P	ZZ	
89/05	MAAC		NJ	GPUS	SCHERING PLOUGH,KN - NUG[e]	17	GT	NG	P	ZZ	
89/05	MAAC		PA	GPUS	SPRINGS DAM 7 - NUG[e]	10	HY	WAT	P	ZZ	
89/05	NPCC	NE	CT	UNK	G. FOX (IEC)	4.1	GT	NG	V	ZZ	
89/05	NPCC	NE	MA	NEES	HAVERHILL POWER INC (OGDEN)	40	ST	REF	V	ZZ	
89/05	NPCC	NE	ME	CMP	SCOTT-WINSLOW	5.8	ST	WOD	V	ZZ	
89/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[f]	12	UN	UNK	L	ZZ	

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[a] Non-utility generators (NUGs) include the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak demand.

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] Qualifying facilities under PURPA which may be waste burning (trash, waste coal), small hydro, third-party financed or self-generation, cogeneration, wind, solar, etc.

[f] Non-utility generators at various locations, providing power burning various types of fuel.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[e]	29.4	UN	REF	V	ZZ	
89/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[e]	51.1	UN	UNK	V	ZZ	
89/05	NPCC	NY	NY	ORRU	NON-UTILITY GENERATORS	1	HY	WAT	L	ZZ	
89/05	NPCC	NY	NY	ORRU	NON-UTILITY GENERATORS[e]	4	UN	REF	L	ZZ	
89/05	NPCC	QUE	QB	HYQB	Manic 5 P.A. 1	264	HY	WAT	V	U	
89/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	5	UN	UNK	P	ZZ	
89/05	SERC	SOU	AL	ALAP	MILLER UNIT 3	667	ST	BIT	V	U	
89/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	19	UN	UNK	P	ZZ	
89/05	SPP	SE	LA	LAFA	RODEMACHER 2	3	ST	BIT	P	U	
89/05	SPP	WC	OK	OKGE	COGENERATOR - SCI	100	CT	NG	V	CG	
89/05	SPP	WC	OK	OMPA	KAW HYDRO	25	HY	WAT	U	U	
89/05	WSCC	CNV	CA	TID	DON PEDRO UNIT 4	32	HY	WAT	V	U	J
89/05	WSCC	NWP	NV	SPP	TCID	4	HY	WAT	V	ZZ	
89/05	WSCC	NWP	WA	PSPL	TWIN FALLS	20	HY	WAT	P	ZZ	
89/06	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #2	1250	NP	UR	V	U	J
89/06	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	151	CG	UNK	U	CG	
89/06	MAAC		NJ	GPUS	L&D LANDFILL - NUG[f]	4	IC	GAS	P	ZZ	
89/06	NPCC	NE	ME	BECO	Downeast/Peat Products America	22.8	ST	PEA	V	ZZ	
89/06	SERC	FL	FL	FLPL	COMMERCIAL COGEN 01	0	CG	NG	V	CG	
89/06	SERC	FL	FL	FLPL	COMMERCIAL COGEN 02	0	CG	NG	V	CG	
89/06	SERC	FL	FL	ORLA	Indian River CT A	38	GT	NG	U	U	J
89/06	SERC	SOU	GA	GEPC	VOGTLE UNIT 2	1086	NP	UR	V	U	J
89/06	SPP	N	MO	SPRM	JRPS GT 1	71	GT	NG	U	U	
89/06	SPP	N	MO	STJO	LAKE ROAD 6	20	JE	FO2	P	U	
89/06	WSCC	CNV	CA	CCSF	MOCCASIN	2	HY	WAT	V	U	
89/06	WSCC	NWP	WA	GCPD	P.E.C. HEADWORKS	7	HY	WAT	V	ZZ	
89/07	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	255	CG	UNK	V	CG	
89/07	NPCC	NB	NB	NBPO	GRAND MANAN #10	25	GT	FO2	V	U	
89/07	NPCC	NE	CT	BECO	CAPITOL DISTRICT CRT	11	CC	NG	V	ZZ	
89/07	NPCC	QUE	QB	HYQB	Manic 5 P.A. 2	264	HY	WAT	V	U	
89/07	SERC	FL	FL	ORLA	Indian River CT B	38	GT	NG	U	U	J
89/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	1	IC	UNK	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	67	IC	UNK	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	100	CG	NG	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	387	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	8	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	129	GE	GST	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	2	HY	WAT	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	30	SO	SUN	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	21	WM	WND	P	ZZ	
89/07	WSCC	NWP	OR	PPL	CENTRAL OR POWER PROJ.	2	HY	WAT	P	ZZ	
89/07	WSCC	NWP	WA	TCL	STEAM PLANT NO. 2	38	CG	REF	V	U	
89/08	MAAC		DE	DPLC	HAY ROAD 1	104	GT	NG	V	U	
89/08	NPCC	NE	MA	UNITIL	INDECK	20.8	ST	COL	V	ZZ	
89/08	NPCC	NY	NY	LOIL	BROOKHAVEN CT	240	GT	FO2	V	U	
89/08	WSCC	NWP	CA	SPP	SPI	10	ZZ	WD	V	ZZ	
89/09	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-450[g]	CG	UNK	P	CG	
89/09	NPCC	NE	NH	PSNH	CONCORD REGIONAL WASTE	12	ST	REF	V	ZZ	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] See page 127, footnote f.

[f] See page 127, footnote e.

[g] Contract expires.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/09	NPCC	NY	NY	POAS	NON-UTILITY GENERATORS[e]	2.5	UN	UNK	V	ZZ	
89/09	NPCC	ONT	ON	ONHY	DARLINGTON 2	881	CD	UR	V	U	
89/09	NPCC	QUE	QB	HYQB	Manic 5 P.A. 3	264	HY	WAT	V	U	
89/10	ECAR		UN	CP	One facility	20	UN	REF	P	ZZ	
89/10	MAAC		NJ	GPUS	HAMM'S LANDFILL - NUG[f]	1	IC	GAS	P	ZZ	
89/10	MAAC		NJ	PSCO	ESSEX COUNTY RRF - NUG	67	UN	REF	P	ZZ	
89/10	NPCC	NE	CT	UNK	AES THAMES	180	ST	COL	V	ZZ	
89/10	NPCC	NE	ME	CMP	CARRABASSETT POWER, ARS G	36.8	ST	WOD	V	ZZ	
89/10	WSCC		AB	EDMP	GENESEE 2	386	ST	SUB	V	U	
89/10	WSCC	NWP	ID	UPLC	MARSH VALLEY	2	HY	WAT	P	ZZ	
89/10	WSCC	RMP	CO	PSC	PLATORO PROJECT (1)	0	HY	WAT	U	ZZ	
89/11	MAAC		PA	GPUS	MODERN LANDFILL - NUG[f]	3	IC	GAS	P	ZZ	
89/11	NPCC	NE	VT	VTGP	Comtu Falls 2	0.15	HY	WAT	T	ZZ	
89/11	NPCC	NE	VT	VTGP	PROCTOR	0.6	IC	UNK	P	U	
89/11	NPCC	QUE	QB	HYQB	Manic 5 P.A. 4	264	HY	WAT	V	U	
89/11	SERC	FL	FL	FLPL	TROPICANA PRODUCTS 1-2	0	CG	NG	V	CG	
89/12	ECAR		IN	AEP	Rockport 2	1300	ST	COL	V	U	
89/12	ERCOT		TX	TUEC	COMANCHE PEAK #1	1150	NP	UR	V	U	J
89/12	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	62	CG	UNK	U	CG	
89/12	MAAC		PA	GPUS	YORK COUNTY RR - NUG[f]	30	ST	REF	P	ZZ	
89/12	NPCC	NE	RI	NEES	NORTHEAST LANDFILL POWER	12	IC	GAS	U	ZZ	
89/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	22[i]	ZZ	UNK	V	ZZ	
89/12	NPCC	ONT	QN	ONHY	NON-UTILITY GEN.	44[i]	ZZ	UNK	U	ZZ	
89/12	SERC	FL	FL	FLPL	COMMERCIAL COGEN 03 (1)	0	CG	NG	P	CG	
89/12	WSCC	NWP	ID	IPC	COGEN	20	CG	UNK	P	CG	
89/12	WSCC	NWP	OR	PPL	LITTLE GREYBACK	0	HY	WAT	P	ZZ	
89/12	WSCC	RMP	CO	PSC	LAKEWOOD HYDRO	2	HY	WAT	T	ZZ	
SUBTOTAL						12168					
90/01	ECAR		UN	CG&E	Unidentified Facility	8	UN	UNK	P	ZZ	
90/01	ECAR		UN	DECO	One Facility	65	UN	REF	P	ZZ	
90/01	ECAR		UN	WPSC	Unidentified	5	UN	UNK	P	ZZ	
90/01	MAAC		NJ	GPUS	GLOUCESTER CO. RR - NUG[f]	11	ST	REF	P	ZZ	
90/01	MAAC		NJ	PSCO	SMALL QF'S - NUG	20	UN	MUL	P	ZZ	
90/01	MAPP		IA	ISU	GRINNELL GT #1	23	GT	FO2	U	U	
90/01	MAPP		IA	ISU	GRINNELL GT #2	23	GT	FO2	U	U	
90/01	NPCC	NE	CT	UNK	DEXTER CORP. CH	38	CC	NG	U	ZZ	
90/01	NPCC	NE	CT	UNK	FLAGG/PERKIN ELMER (CCF 2)	8.5	CC	NG	T	ZZ	
90/01	NPCC	NE	ME	CMP	LEWISTON STEAM & PWR PHII IN	3.4	ST	REF	U	ZZ	
90/01	NPCC	NE	NH	PSNH	SEABROOK 1[g]	1150	NP	UR	V	U	
90/01	NPCC	NY	NY	LOIL	SHOREHAM[h]	809	NB	UR	V	U	
90/01	SERC	FL	FL	FLPL	PALM BCH CTY. RES. REC.(2)	55	ZZ	REF	P	ZZ	
90/01	SERC	VAC	NC	CAPO	Falls Dam	3	HY	WAT	P	ZZ	
90/01	SERC	VAC	NC	CAPO	Hope Mills Dam	3	HY	WAT	P	ZZ	
90/01	SERC	VAC	NC	CAPO	Jordan Dam	10	HY	WAT	P	ZZ	
90/01	SPP	SE	LA	LEPA	D.G. HUNTER 1	16	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	D.G. HUNTER 2	16	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	D.G. HUNTER 3	47	ST	GAS	P	U	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] See page 127, footnote f.

[f] See page 127, footnote e.

[g] Public Service of New Hampshire (PSNH) is unable to predict when the Seabrook plant will be permitted to commence operation. However, for planning and reporting purposes New England Power Planning (NEPLAN) is assuming commercial operation by January 1, 1990.

[h] Shoreham construction is completed, awaiting NRC operating license.

[i] Includes industrial non-utility generation, power from municipal waste, and small hydro developments.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
90/01	SPP	SE	LA	LEPA	D.G. HUNTER 4	78	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	MORGAN CITY STEAM 1	10	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	MORGAN CITY STEAM 2	10	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	MORGAN CITY STEAM 3	18	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	MORGAN CITY STEAM 4	34	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 1	2	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 3	1	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 4	1	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 5	2	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 6	2	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	PLAQUEMINE STEAM 1	20	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	PLAQUEMINE STEAM 2	23	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	RAYNE DIESEL 8	3	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	RAYNE DIESEL 9	3	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	RODEMACHER UNIT #2	81	ST	COL	P	U	
90/01	WSCC		BC	WKPL	GAS TURBINES 1-2	116	GT	NG	L	U	
90/01	WSCC	CNV	CA	LDWP	HYPERION ENERGY SYS	43	CG	ZZ	P	CG	
90/01	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN.	78	CG	UNK	P	CG	
90/01	WSCC	CNV	CA	NCPA	HYDROELEC. PROJ NO. ONE	200	HY	WAT	V	U	J
90/01	WSCC	CNV	CA	PG&E	PVUSA 2	1	SO	SUN	P	U	
90/01	WSCC	CNV	CA	PG&E	QF COGENERATION 90	553	CG	UNK	P	CG	
90/01	WSCC	CNV	CA	PG&E	QF HYDRO 90	12	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF SOLID WASTE/BIOMASS 90	125	ZZ	UNK	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF WIND 90	15	WM	WND	P	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF BIOGAS (1)	1	IC	ZZ	P	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF BIOMASS	9	ST	REF	P	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF COGENERATION (1)	40	CG	NG	P	CG	
90/01	WSCC	CNV	CA	SDGE	QF COGENERATION (3)	108	CG	NG	P	CG	
90/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
90/01	WSCC	NWP	ID	UPLC	ENVIRONMENTAL ENERGY CO.	8	HY	WAT	P	ZZ	
90/01	WSCC	NWP	ID	WWPC	CLEARWATER POWER 1-2	1	HY	WAT	U	ZZ	
90/01	WSCC	NWP	UT	UPLC	COVE FORT 1	6	GE	GST	P	U	
90/01	WSCC	NWP	WA	SHPD	SUMMIT COGEN	10	CG	WD	L	CG	
90/02	MAAC		PA	GPUS	CLARION POWER - NUG[e]	26	ST	ZZ	P	ZZ	
90/02	NPCC	NE	MA	CES	PEPPERELL	34.6	CC	NG	U	ZZ	
90/02	SERC	FL	FL	KEYW	Stock Island Diesel #1	9.8	IC	FO2	U	U	
90/02	SERC	FL	FL	KEYW	Stock Island Diesel #2	9.8	IC	FO2	U	U	
90/02	WSCC	RMP	CO	PSC	Q-WEST PROJECT	25	CG	NG	L	CG	
90/03	ECAR		MI	CP	MCV	800	CC	NG	P	CG	
90/03	MAAC		NJ	GPUS	NEWARK BOXBOARD - NUG[e]	52	GT	NG	P	ZZ	
90/03	WSCC		MX	CFE	ROSARITO II #1	150	ST	FO6	U	U	
90/04	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	U	U	
90/04	ERCOT		TX	TUEC	COMBUSTION TURBINES	260	GT	NG	U	U	
90/04	MAIN	WUM	WI	MPU	BOILER ADDITION	13	ST	BIT	P	U	
90/04	NPCC	NE	VT	VTGP	HIGHGATE FALLS	3.1	HY	WAT	U	U	
90/04	NPCC	ONT	ON	ONHY	DARLINGTON 1	881	CD	UR	V	U	
90/04	WSCC	RMP	CO	PSC	COLO. POWER PROJECT #1	50	CG	NG	T	CG	
90/05	MAAC		NJ	AECO	AE COMBUSTION TURBINE	75	GT	NG	P	U	

[a,b,c,d,e] See page 127, footnotes a, b, c, d, and e, respectively.

Generating Unit Additions (Utility and Non-Utility)[a]

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
90/05	MAAC		NJ	GPUS	SCHERING PLOUGH,UN - NUG[e]	10	GT	NG	P	ZZ	
90/05	MAAC		PA	PECO	LIMERICK 2	1055	NB	UR	V	U	
90/05	MAAC		UN	PPCO	COMBUSTION TURBINE	105	GT	FO2	L	U	
90/05	MAPP		IA	IPL	PLEASANT HILL #1	35	GT	FO2	L	U	
90/05	MAPP		IA	IPL	PLEASANT HILL #2	35	GT	FO2	L	U	
90/05	NPCC	NE	ME	CMP	BOISE CASCADE	29	ST	WOD	U	ZZ	
90/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[f]	73	UN	UNK	T	ZZ	
90/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[f]	50.1	UN	UNK	V	ZZ	
90/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[f]	60.2	UN	REF	V	ZZ	
90/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS	9.2	HY	WAT	T	ZZ	
90/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[f]	196	UN	UNK	T	ZZ	
90/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS	33	HY	WAT	T	ZZ	
90/05	NPCC	NY	NY	ORRU	NON-UTILITY GENERATORS[f]	16	UN	UNK	T	ZZ	
90/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	23	UN	UNK	P	ZZ	
90/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	687	UN	UNK	P	ZZ	
90/05	SPP	N	MO	STJO	LAKE ROAD 7	15	JE	FO2	P	U	
90/05	SPP	SE	TX	LUPL	TECH 1	20	GT	NG	U	U	
90/05	WSCC	NWP	UT	UAMP	PINEVIEW	2	HY	WAT	U	U	
90/06	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-50[g]	CG	UNK	P	CG	
90/06	NPCC	NE	VT	UNITIL	ARROWHEAD COGEN.	27	ST	NG	T	CG	
90/06	SERC	VAC	VA	VIEP	Chesterfield 7	127	CT	NG	U	U	
90/06	SERC	VAC	VA	VIEP	Chesterfield 7	58	CW	WH	U	U	
90/06	WSCC	AZN	AZ	TEP	SPRINGERVILLE 2	360	ST	SUB	V	U	
90/06	WSCC	CNV	CA	WAMP	WEBER GT	9	CG	NG	P	CG	
90/07	ECAR		PA	APS	Milesburg	43	ST	COL	P	ZZ	
90/07	ECAR		UN	CP	One facility	50	UN	COL	P	ZZ	
90/07	ERCOT		TX	HL&P	AES DEEPWATER-NUG	136	ST	PC	P	CG	
90/07	NPCC	NE	MA	NEES	ALTRESCO/G.E.	161	CC	NG	U	ZZ	
90/07	NPCC	NY	NY	POAS	PASNY NEW HYDRO	12	HY	WAT	U	U	
90/07	WSCC	CNV	CA	SCE	BATTERY STORAGE	10	ZZ	UNK	V	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	71	IC	UNK	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	158	CG	NG	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	49	CG	UNK	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	180	GE	GST	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	101	SO	SUN	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	5	WM	WND	P	ZZ	
90/07	WSCC	RMP	CO	PSC	PUEBLO CHEMICAL	65	CG	NG	T	CG	
90/08	MAAC		NJ	GPUS	DUPONT - NUG[e]	92	GT	NG	P	ZZ	
90/08	WSCC	RMP	CO	PSC	STAGECOACH (1)	1	HY	WAT	U	ZZ	
90/09	MAAC		NJ	PSCO	CAMPBELL SOUP - NUG	112	CW	NG	L	ZZ	
90/09	MAAC		NJ	PSCO	PENNSAUKEN RRF - NUG	7	ST	REF	L	ZZ	
90/09	NPCC	NE	ME	CEMP	MONTY	25	HY	WAT	U	U	
90/09	NPCC	NE	ME	CMP	Andro 1,2,3	1.7	HY	WAT	U	ZZ	
90/09	SERC	FL	FL	FLPC	LAKE COUNTY RES. REC. 1	10	ZZ	REF	P	ZZ	
90/09	WSCC		MX	CFE	ROSARITO II #2	150	ST	FO6	T	U	
90/09	WSCC	NWP	ID	WWPC	CANYON CREEK (2)	0	HY	WAT	T	ZZ	
90/09	WSCC	NWP	WA	PSPL	KOMA KULSHAN	12	HY	WAT	P	ZZ	

[a,b,c,d,e,f] See page 127, footnotes a, b, c, d, e, and f, respectively.

[g] Contract expires.

Generating Unit Additions (Utility and Non-Utility)[a]

(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
90/10	MAAC		NJ	PSCO	NEWARK BAY - NUG	92	CW	NG	L	ZZ	
90/10	MAPP		MN	NSP	HENNEPIN CO-NSP #1	38	ST	ZZ	P	ZZ	
90/10	NPCC	NE	CT	UNK	O'BRIEN/HARTFORD	53.5	CC	NG	T	ZZ	
90/10	SERC	FL	FL	FLPC	ST. JOE FOREST PROD. 3	15	CG	WD	P	CG	
90/10	WSCC		AB	TAUC	SHEERNESS 2	366	ST	SUB	V	U	J
90/11	MAAC		NJ	GPUS	CONTINENTAL, SAYRE - NUG[e]	250	CW	NG	P	ZZ	
90/11	MAAC		PA	GPUS	GLENDON ENERGY - NUG[e]	11	ST	REF	P	ZZ	
90/11	MAPP		MB	MHEB	LIMESTONE 1	120	HY	WAT	U	U	
90/11	NPCC	NE	NH	UNITIL	UNICORD PROJ-PEMBROKE WO	18.5	ST	WOD	U	ZZ	
90/11	NPCC	NE	VT	VTGP	North Troy Hydro	0.37	HY	WAT	U	ZZ	
90/12	ECAR		MI	CP	MCV	440	CC	NG	P	CG	
90/12	ECAR		WV	APS	Sutton	2	HY	WAT	P	ZZ	
90/12	MAAC		NJ	PSCO	EAGLE POINT - NUG	160	CW	NG	T	ZZ	
90/12	MAAC		PA	GPUS	CAMBRIA COGEN - NUG[e]	80	ST	ZZ	P	ZZ	
90/12	MAAC		PA	GPUS	EBENSBURG POWER - NUG[e]	50	ST	ZZ	P	ZZ	
90/12	MAAC		PA	GPUS	LANCASTER CO. RR - NUG[e]	30	ST	REF	P	ZZ	
90/12	MAAC		PA	GPUS	SCRUBGRASS POWER - NUG[e]	80	ST	ZZ	P	ZZ	
90/12	MAPP		MB	MHEB	LIMESTONE 2	120	HY	WAT	U	U	
90/12	NPCC	NE	MA	OSPC	OCEAN STATE POWER 1	225	CC	NG	T	U	
90/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	120[f]	ZZ	UNK	L	ZZ	
90/12	SERC	SOU	GA	SEPA	RUSSELL HYDRO UNIT 5	75	PS	WAT	U	U	
SUBTOTAL						13285					
91/01	ECAR		UN	DECO	One Facility	5	UN	UNK	P	ZZ	
91/01	ECAR		UN	PSI	Unidentified	6	UN	UNK	P	ZZ	
91/01	MAAC		NJ	AECO	QUALIFYING FACILITY 1	44	CT	NG	P	ZZ	
91/01	MAAC		NJ	AECO	SMALL POWER PRODUCER 1	15	GT	NG	P	ZZ	
91/01	MAAC		NJ	PSCO	SMALLL QF'S - NUG	20	UN	UNK	P	ZZ	
91/01	MAAC		PA	GPUS	XIOX GREENHOUSE - NUG[e]	13.5	GT	NG	P	ZZ	
91/01	NPCC	NE	CT	UNK	BIO-GEN TORRINGTON PTNRSH	13	ST	WOD	T	ZZ	
91/01	NPCC	NE	CT	UNK	EXETAR ENERGY (OXFORD)	24.5	ST	ZZ	T	ZZ	
91/01	SERC	FL	FL	FLPC	PASCO WASTE RECOVERY 1	20	ZZ	REF	P	ZZ	
91/01	SERC	FL	FL	FLPC	UNIVERSITY OF FLORIDA 1	3	CG	NG	P	CG	
91/01	SERC	FL	FL	HSTM	Ivey 22	25	IC	NG	P	U	
91/01	SERC	VAC	NC	CAPO	Undesignated	15	UN	UNK	P	U	
91/01	WSCC	CNV	CA	PG&E	PVUSA 3	1	SO	SUN	P	U	
91/01	WSCC	CNV	CA	PG&E	QF COGENERATION 91	84	CG	UNK	P	CG	
91/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 91	3	GE	GST	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	QF HYDRO 91	22	HY	WAT	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	QF SOLID WASTE/BIOMASS 91	46	ZZ	UNK	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	QF WIND 91	14	WM	WND	P	ZZ	
91/01	WSCC	NWP	MT	MPC	AEM	35	CG	ZZ	P	CG	
91/01	WSCC	NWP	UT	UPLC	KAISER COGEN	45	CG	BIT	P	CG	
91/01	WSCC	NWP	WA	TCL	WYNOCHEE 1	0	HY	WAT	T	U	
91/02	MAPP		MB	MHEB	LIMESTONE 3	120	HY	WAT	U	U	
91/03	SERC	VAC	GA	SEPA	Russell Hydro 6	75	PS	WAT	U	U	
91/03	WSCC	RMP	WY	USGP	SHOSHONE	21	HY	WAT	U	U	
91/04	ECAR		UN	SIGE	Undesignated	80	GT	NG	P	U	

[a,b,c,d,e] See page 127, footnotes a, b, c, d, and e, respectively.

[f] See page 129, footnote i.

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(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
91/04	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-100[e]	CG	UNK	P	CG	
91/04	MAPP		MB	MHEB	LIMESTONE 4	120	HY	WAT	U	U	
91/05	ECAR		OH	HAMI	Hydro	5	HY	WAT	P	U	
91/05	MAAC		UN	DPLC	UNIDENTIFIED CT/NUG	100	GT	UNK	P	ZZ	
91/05	MAAC		UN	PPCO	COMBUSTION TURBINE	105	GT	FO2	L	U	
91/05	MAAC		UN	PPCO	SMECO CT	60	GT	NG	L	U	
91/05	MAPP		UN	NWPS	FUTURE CT	22.5	GT	FO2	P	U	
91/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[f]	191	UN	UNK	L	ZZ	
91/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[f]	47	UN	UNK	T	ZZ	
91/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[f]	14	UN	UNK	L	ZZ	
91/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[f]	47	UN	UNK	L	ZZ	
91/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[f]	50	UN	UNK	L	ZZ	
91/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS	13	HY	WAT	T	ZZ	
91/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[f]	500	UN	UNK	T	ZZ	
91/05	NPCC	ONT	ON	ONHY	DARLINGTON 3	881	CD	UR	V	U	
91/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	55	UN	UNK	P	ZZ	
91/05	SERC	SOU	AL	ALAP	MILLER UNIT 4	667	ST	BIT	V	U	
91/05	SERC	VAC	SC	SOCG	Hagood GT 1	96	GT	NG	T	U	
91/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	936	UN	UNK	P	ZZ	
91/05	SPP	N	MO	MIPU	GREENWOOD 1	3	GT	FO2	L	U	
91/05	SPP	N	MO	MIPU	GREENWOOD 2	3	GT	FO2	L	U	
91/05	SPP	N	MO	MIPU	GREENWOOD 3	3	GT	FO2	L	U	
91/05	SPP	N	MO	MIPU	GREENWOOD 4	3	GT	FO2	L	U	
91/05	SPP	SE	LA	LAFA	PLAQUEMINE 1	20	ST	NG	P	U	
91/05	SPP	SE	LA	LAFA	PLAQUEMINE 2	23	ST	NG	P	U	
91/05	SPP	WC	OK	OKGE	COGENERATOR - AES	300	ST	BIT	U	CG	
91/06	ECAR		OH	CG&E	W.H. Zimmer 1[g]	1300	ST	COL	U	U	J
91/06	ERCOT		TX	TUEC	COMANCHE PEAK #2	1150	NP	UR	V	U	J
91/06	MAAC		NJ	AECO	CCA	80	CT	NG	P	ZZ	
91/06	MAAC		NJ	AECO	DRMI	80	ZZ	REF	P	ZZ	
91/06	MAAC		NJ	AECO	QUALIFYING FACILITY 2	5.2	CC	NG	P	ZZ	
91/06	MAAC		UN	GPUS	NON-UTILITY GENERATION[h]	301	UN	UNK	P	ZZ	
91/06	MAPP		IA	IPW	MASON CITY GT #1	30	GT	FO2	U	U	
91/06	MAPP		IA	IPW	MASON CITY GT #2	30	GT	FO2	U	U	
91/06	NPCC	NE	VT	VTGP	Dodge Falls - Hydro Co.	2.5	HY	WAT	T	ZZ	
91/06	SERC	SOU	AL	ALEC	CAES UNIT 1[i]	110	ZZ	NG	U	U	
91/06	SERC	SOU	GA	SEPA	RUSSELL HYDRO UNIT 7	75	PS	WAT	U	U	
91/06	SPP	SE	TX	LUPL	WASTE RECOVERY 1	10	ST	REF	T	U	
91/07	ECAR		KY	LG&E	Trimble County 1	495	ST	COL	V	U	
91/07	ECAR		WV	APS	Randolph	3	HY	WAT	P	ZZ	
91/07	MAPP		MB	MHEB	LIMESTONE 5	120	HY	WAT	U	U	
91/07	NPCC	NE	CT	UNK	FLAGG/UNIROYAL (CCF 3)	24	ST	WOD	T	ZZ	
91/07	NPCC	NE	CT	UNK	SE CT REIONAL CRRA (PROCTO	13.9	ST	REF	T	ZZ	
91/07	NPCC	NY	NY	POAS	NON-UTILITY GENERATORS[f]	4.3	UN	UNK	P	ZZ	
91/07	WSCC	CNV	CA	GLEN	SCHOLL CANYON 2	12	IC	REF	U	U	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	1	IC	UNK	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	21	GE	GST	P	ZZ	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] Contract expires.

[f] See page 127, footnote f.

[g] The owners of this plant, which has been under construction as a nuclear unit, announced on January 21, 1984 that the plant design will be converted from nuclear to coal-fired.

[h] See page 127, footnote e.

[i] Compressed air energy storage.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
91/07	WSCC	NWP	UT	UAMP	EAST CANYON 1 & 2	2	HY	WAT	L	U	
91/07	WSCC	NWP	UT	UAMP	LOST CREEK	1	HY	WAT	T	U	
91/08	MAAC		NJ	PSCO	UNION COUNTY RRF - NUG	40	ST	REF	P	ZZ	
91/09	SERC	VAC	GA	SEPA	Russell Hydro 8	75	PS	WAT	U	U	
91/10	ECAR		PA	APS	Burgettstown	80	ST	COL	P	ZZ	
91/10	ECAR		UN	APS	PURPA Contingency	-25[e]	UN	UNK	P	ZZ	
91/10	MAPP		MB	MHEB	LIMESTONE 6	120	HY	WAT	U	U	
91/10	MAPP		SA	SPC	FUTURE PEAKING 1	46	GT	NG	P	U	
91/10	NPCC	NS	NS	NSPC	TRENTON 6	150	ST	BIT	U	U	
91/10	NPCC	QUE	QB	HYQB	LG 2A P.A. 1	316	HY	WAT	V	U	
91/10	SERC	FL	FL	FLPC	PINELLAS WASTE REC. NO.1	50	ZZ	REF	P	ZZ	
91/10	WSCC		AB	EDMP	GENESEE 1	386	ST	SUB	U	U	
91/10	WSCC		AB	TAUC	NON-UTILITY GENERATION	125	CG	UNK	L	CG	
91/10	WSCC	RMP	CO	USUC	MCPHEE POWER PLANT	1	HY	WAT	V	U	
91/11	NPCC	NE	MA	OSPC	OCEAN STATE POWER 1	225	CC	NG	L	U	
91/11	NPCC	NE	VT	VTGP	FLORENCE	9	GT	UNK	P	U	
91/11	NPCC	NE	VT	VTGP	NEWPORT 1	0.2	HY	WAT	P	U	
91/11	NPCC	NE	VT	VTGP	Winooski One Partnership	5	HY	WAT	T	ZZ	
91/12	MAAC		UN	GPUS	NON-UTILITY GENERATION[f]	105	UN	UNK	P	ZZ	
91/12	MAPP		MB	MHEB	LIMESTONE 7	120	HY	WAT	U	U	
91/12	NPCC	QUE	QB	HYQB	HART JAUNE 1-2-3	48	HY	WAT	P	U	
91/12	NPCC	QUE	QB	HYQB	LG 2A P.A. 2	316	HY	WAT	V	U	
91/12	SERC	FL	FL	FLPC	CFR BIO-GEN CORP. 1	74	ZZ	WD	P	ZZ	
91/12	WSCC	CNV	CA	CDWR	DEVIL CANYON 3	80	HY	WAT	U	U	
91/12	WSCC	CNV	CA	CDWR	DEVIL CANYON 4	80	HY	WAT	U	U	
SUBTOTAL						11217					
92/01	ECAR		PA	APS	Pt. Marion	2	HY	WAT	P	ZZ	
92/01	ECAR		UN	DECO	One Facility	2	HY	WAT	P	ZZ	
92/01	ECAR		UN	DECO	Total of 2 Facilities	5	UN	UNK	P	ZZ	
92/01	ECAR		WV	APS	Grant Town	80	ST	COL	P	ZZ	
92/01	MAAC		NJ	AECO	SMALL POWER PRODUCER 2	15	GT	NG	P	ZZ	
92/01	MAAC		NJ	PSCO	SMALL QF'S - NUG	20	UN	UNK	P	ZZ	
92/01	MAAC		NJ	PSCO	SOMERSET COUNTY RRF - NUG	18	UN	UNK	P	ZZ	
92/01	NPCC	NE	CT	UNK	ARS POWER 1	32.2	ST	WOD	T	ZZ	
92/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	100[g]	ZZ	UNK	P	ZZ	
92/01	SERC	FL	FL	FLPL	BROWARD RES. REC. NO.	45	ZZ	REF	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF COGENERATION 92	18	CG	UNK	P	CG	
92/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 92	36	GE	GST	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF HYDRO 92	62	HY	WAT	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF SOLID WASTE/BIOMASS 92	24	ZZ	UNK	P	ZZ	
92/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
92/01	WSCC	NWP	OR	IPC	SMALL HYDRO	6	HY	WAT	P	ZZ	
92/02	MAAC		NJ	AECO	CPA	116	CT	NG	P	ZZ	
92/02	MAAC		UN	GPUS	NON-UTILITY GENERATION[f]	80	UN	UNK	P	ZZ	
92/02	NPCC	ONT	ON	ONHY	DARLINGTON 4	881	CD	UR	U	U	
92/02	WSCC		MX	CFE	CERRO PRIETO IV UNIT 1	52	GE	GST	L	U	
92/03	ECAR		UN	APS	PURPA 1	49	ST	COL	P	ZZ	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] PURPA contingency to recognize that not all of the PURPA capacity will finally be developed.

[f] See page 127, footnote e.

[g] See page 129, footnote i.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
92/03	MAAC		NJ	PSCO	HUDSON COUNTY RRF - NUG	38	ST	REF	P	ZZ	
92/03	MAAC		NJ	PSCO	PASSAIC COUNTY RRF - NUG	40	ST	REF	P	ZZ	
92/03	MAAC		UN	GPUS	NON-UTILITY GENERATION[e]	80	UN	UNK	P	ZZ	
92/03	NPCC	QUE	QB	HYQB	LG 2A P.A. 3	316	HY	WAT	V	U	
92/04	ECAR		PA	APS	Schenley	80	ST	COL	P	ZZ	
92/04	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-300[f]	CG	UNK	P	CG	
92/04	MAAC		MD	BCCO	BRANDON SHORES 2	640	ST	BIT	U	U	
92/04	NPCC	NE	VT	VTGP	C. RUTLAND	0.3	HY	WAT	P	U	
92/04	SERC	TVA	TN	TVA	WATTS BAR NO. 1[g]	1170	NP	UR	V	U	
92/04	SERC	VAC	SC	DUPC	Bad Creek 1	250	PS	WAT	U	U	
92/04	SERC	VAC	SC	DUPC	Bad Creek 2	250	PS	WAT	U	U	
92/04	WSCC	RMP	CO	PSC	A.B. LATERAL	35	HY	WAT	L	ZZ	
92/04	WSCC	RMP	CO	PSC	HORSE MOUNTAIN POWER GEN	25	CG	BIT	L	CG	
92/04	WSCC	RMP	CO	PSC	SHAVANO FALLS	3	HY	WAT	L	ZZ	
92/05	ERCOT		TX	CPSA	J. K. SPRUCE #1	498	ST	COL	U	U	
92/05	MAAC		DE	DPLC	DOVER CT	30	GT	FO2	P	U	
92/05	MAAC		NJ	PSCO	MERCER COUNTY RRF - NUG	19	ST	REF	P	ZZ	
92/05	MAAC		UN	DPLC	NON-UTILITY GENERATION	100	UN	UNK	P	ZZ	
92/05	MAAC		UN	GPUS	COMBUSTION TURBINES	70	GT	FO2	P	U	
92/05	MAPP		IA	IPL	PLEASANT HILL #1	35	GT	FO2	P	U	
92/05	MAPP		IA	IPL	PLEASANT HILL #2	35	GT	FO2	P	U	
92/05	MAPP		MB	MHEB	LIMESTONE 8	120	HY	WAT	U	U	
92/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[h]	182	UN	UNK	L	ZZ	
92/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[h]	47	UN	REF	P	ZZ	
92/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[h]	16.8	UN	UNK	T	ZZ	
92/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS	40	HY	WAT	T	ZZ	
92/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS	13	HY	WAT	L	ZZ	
92/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[h]	325	UN	UNK	L	ZZ	
92/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	20	UN	UNK	P	ZZ	
92/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	575	UN	UNK	P	ZZ	
92/05	SPP	N	MO	MIPU	RALPH GREEN 1	20	CW	NG	L	U	
92/05	WSCC	NWP	WA	PSPL	WHITE RIVER FLUME	14	HY	WAT	L	U	
92/06	MAAC		NJ	AECO	QUALIFYING FACILITY 3	19.8	CC	NG	P	ZZ	
92/06	MAIN	SCI	IL	CWLP	LAKESIDE GT1	36	CT	NG	P	U	
92/06	MAIN	WUM	WI	MARF	WILDWOOD 6-8	15	IC	FO2	P	U	
92/06	NPCC	NY	NY	NIMP	SOUTH GLENS FALLS	13.8	HY	WAT	L	U	
92/06	NPCC	QUE	QB	HYQB	LG 2A P.A. 4	316	HY	WAT	V	U	
92/06	SERC	VAC	VA	VIEP	Chesterfield 8	127	CT	NG	P	U	
92/06	SERC	VAC	VA	VIEP	Chesterfield 8	58	CW	WH	P	U	
92/07	MAPP		SA	SPC	SHAND 1	280	ST	LIG	L	U	
92/07	NPCC	NY	NY	POAS	NON-UTILITY GENERATORS[h]	3.4	UN	UNK	P	ZZ	
92/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
92/07	WSCC	NWP	ID	USPN	MINIDOKA 1-5	12	HY	WAT	P	U	
92/07	WSCC	RMP	CO	PSC	SUNLAWN EASTSIDE	25	CG	BIT	T	CG	
92/07	WSCC	RMP	CO	USUC	TOWAOC	11	HY	WAT	U	U	
92/08	MAPP		MB	MHEB	LIMESTONE 9	120	HY	WAT	U	U	
92/09	ECAR		PA	APS	Shannopin	80	ST	COL	P	ZZ	
92/09	NPCC	QUE	QB	HYQB	LG 2A P.A. 5	316	HY	WAT	V	U	

[a,b,c,d,e] See page 127, footnotes a, b, c, d, and e, respectively.

[f] Contract expires.

[g] TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. The date shown is for long range planning purposes only.

[h] See page 127, footnote f.

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Generating Unit Additions (Utility and Non–Utility)[a]

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
92/09	WSCC	RMP	CO	USUC	RIDGEWAY POWER PLANT	4	HY	WAT	T	U	
92/11	MAAC		UN	GPUS	NON-UTILITY GENERATION[e]	80	UN	UNK	P	ZZ	
92/11	MAPP		MB	MHEB	LIMESTONE 10	120	HY	WAT	U	U	
92/11	NPCC	NE	VT	VTGP	FAIRFAX FALLS	2.8	HY	WAT	P	U	
92/12	NPCC	NE	MA	NEES	VERNON	20	HY	WAT	P	U	
92/12	NPCC	QUE	QB	HYQB	LG 2A P.A. 6	316	HY	WAT	V	U	
92/12	NPCC	QUE	QB	HYQB	TAG 1	124	GT	FO2	P	U	
SUBTOTAL						8536					
93/01	ECAR		UN	DECO	Undesignated Number	50	UN	UNK	P	ZZ	
93/01	ECAR		UN	DP&L	Undesignated	6	UN	UNK	P	ZZ	
93/01	ECAR		UN	PSI	Unidentified	14	UN	UNK	P	ZZ	
93/01	ERCOT		TX	BEPC	UNDESIGNATED	208	CC	NG	P	U	
93/01	MAAC		NJ	AECO	KCS	206	ST	BIT	P	ZZ	
93/01	MAAC		NJ	AECO	RESOURCE RECOVERY 1	24	ZZ	REF	P	U	
93/01	MAAC		NJ	AECO	SMALL POWER PRODUCER 3	15	ST	BIT	P	ZZ	
93/01	MAAC		NJ	PSCO	NON-UTILITY BIDS	100	UN	UNK	P	ZZ	
93/01	MAAC		NJ	PSCO	SMALL QF'S - NUG	20	UN	UNK	P	ZZ	
93/01	NPCC	NE	ME	BAHE	MILTON	1.7	HY	WAT	P	U	
93/01	NPCC	NE	ME	BAHE	VEAZIE	4.8	HY	WAT	P	U	
93/01	NPCC	NY	NY	NIMP	OSWEGO FALLS WEST	5.5	HY	WAT	L	U	
93/01	NPCC	ONT	ON	ONHY	LAKE GIBSON	5	HY	WAT	P	U	
93/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	90[f]	ZZ	UNK	P	ZZ	
93/01	SERC	FL	FL	FLPC	Firm Purchase 1	200	UN	UNK	P	U	
93/01	SERC	FL	FL	FLPC	GENERAL PEAT RESOURCES 1	52	ZZ	PEA	P	ZZ	
93/01	SERC	FL	FL	FLPL	AES CEDAR BAY (1)	225	CG	BIT	P	CG	
93/01	SERC	FL	FL	FLPL	BIOMASS FACILITY 03 (1)	10	ZZ	WD	P	ZZ	
93/01	SERC	FL	FL	FLPL	INDUSTRIAL COGEN 03	250	CG	NG	P	CG	
93/01	SERC	FL	FL	FLPL	SOLID WASTE EXPANSION 01	50	ZZ	WD	P	ZZ	
93/01	SERC	FL	FL	SECI	Hardee Power Station Two	220	CC	NG	L	U	
93/01	SERC	FL	FL	TAEC	REFUSE PLANT	8	ZZ	REF	P	ZZ	
93/01	SERC	SOU	MS	SOMI	MOSELLE	80	CT	NG	P	U	
93/01	SERC	VAC	SC	DUPC	Bad Creek 3	250	PS	WAT	U	U	
93/01	SERC	VAC	SC	DUPC	Bad Creek 4	250	PS	WAT	U	U	
93/01	WSCC	AZN	AZ	APS	SOLAR 1	2	SO	SUN	U	U	
93/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	2	CG	UNK	P	CG	
93/01	WSCC	CNV	CA	PG&E	UNID. ID & WA HYDRO 93	25	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 93	2	HY	WAT	L	U	
93/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 93	20	HY	WAT	L	U	
93/01	WSCC	CNV	CA	SCE	COOLWATER IGCC	100	ST	ZZ	V	ZZ	
93/02	WSCC		MX	CFE	CERRO PRIETO IV UNIT 2	52	GE	GST	T	U	
93/03	SPP	N	MO	KACP	WASTE-TO-ENERGY	20	ST	REF	P	U	
93/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
93/04	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	100	CG	UNK	P	CG	
93/04	WSCC	RMP	CO	PSC	MONFORT COGEN	122	CG	NG	U	CG	
93/05	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	12.6	UN	UNK	P	U	
93/05	MAAC		UN	DPLC	HAY ROAD 3	100	CW	WH	P	U	
93/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	CT	NG	P	U	

[a,b,c,d,e] See page 127, footnotes a, b, c, d, and e, respectively.

[f] See page 129, footnote i.

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Generating Unit Additions (Utility and Non-Utility)[a]

(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
93/05	MAAC		UN	PPCO	MUNI. SOLID WASTE	40	ST	REF	P	U	
93/05	MAPP		UN	NWPS	FUTURE CT 2	22.5	GT	FO2	P	U	
93/05	NPCC	NY	NY	CEHG	NON-UTILITY GENERATORS	2	HY	WAT	L	ZZ	
93/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[e]	40	UN	UNK	L	ZZ	
93/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[e]	30	UN	REF	L	ZZ	
93/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[e]	74.9	UN	UNK	L	ZZ	
93/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS	0.9	HY	WAT	L	ZZ	
93/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[e]	49.7	UN	UNK	T	ZZ	
93/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[e]	55	UN	UNK	L	ZZ	
93/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[e]	128	UN	UNK	P	ZZ	
93/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS	3.3	HY	WAT	P	ZZ	
93/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	57	UN	UNK	P	ZZ	
93/05	SERC	VAC	SC	SOCG	Undesignated 2	96	GT	NG	P	U	
93/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	457	UN	UNK	P	ZZ	
93/06	MAIN	SCI	IL	CWLP	LAKESIDE 4[f]	20	CA	COL	P	U	
93/06	MAIN	SCI	IL	CWLP	LAKESIDE 5	20	CA	NG	P	U	
93/06	MAIN	SCI	IL	CWLP	LAKESIDE GT2[f]	36	CT	COL	P	U	
93/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
93/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
93/06	MAIN	WUM	WI	WEP	HYDRO	3	HY	WAT	P	U	
93/06	NPCC	NE	MA	NEES	BELLOWS FALLS	6	HY	WAT	P	U	
93/06	SPP	N	MO	SPRM	JRPS GT 2	71	GT	NG	P	U	
93/06	SPP	WC	OK	OMPA	COMB. TURBINE 1	35	CT	NG	P	U	
93/06	WSCC	CNV	NV	NEVP	CLARK 5	70	CT	NG	P	U	
93/06	WSCC	CNV	NV	NEVP	CLARK 6	70	CT	NG	P	U	
93/06	WSCC	CNV	NV	NEVP	CLARK 9	90	CW	NG	L	U	
93/06	WSCC	NWP	WA	TCL	BARRIER 1-2	0	HY	WAT	P	U	
93/07	MAPP		ND	MDU	SGI INTERNATL-MDU	25	ST	LIG	P	ZZ	
93/07	NPCC	NY	NY	NIMP	HUDSON FALLS	36.1	HY	WAT	L	U	
93/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	10	IC	UNK	P	ZZ	
93/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
93/07	WSCC	NWP	OR	PGE	MISC. RESOURCES	55	ZZ	UNK	P	ZZ	
93/10	MAAC		NJ	AECO	CCLP	224	ST	BIT	P	ZZ	
93/10	MAPP		SA	SPC	FUTURE PEAKING 2	46	GT	NG	P	U	
93/10	NPCC	NS	NS	NSPC	PT. ACONI 1	150	ST	BIT	L	U	
93/11	NPCC	NB	NB	NBPO	PULVERIZED COAL #1	450	ST	COL	L	U	
93/11	NPCC	NE	CT	UNK	Flagg/Perkin Elmer Incr(CCF2)	0.85	CC	NG	T	ZZ	
93/12	ERCOT		TX	HL&P	OCCIDENTAL-NUG	-225[g]	CT	NG	P	CG	
93/12	NPCC	QUE	QB	HYQB	TAG 2-3-4	372	GT	FO2	P	U	
93/12	WSCC	NWP	WA	PSPL	THUNDER CREEK	6	HY	WAT	L	U	
SUBTOTAL						5965					
94/01	ECAR		UN	DECO	One Facility	1	HY	WAT	P	ZZ	
94/01	ECAR		UN	DP&L	Undesignated	7	UN	UNK	P	ZZ	
94/01	ERCOT		TX	BEPC	UNDESIGNATED	68	GT	NG	P	U	
94/01	MAAC		NJ	AECO	RESOURCE RECOVERY 2	18	ZZ	REF	P	U	
94/01	MAAC		NJ	AECO	SMALL POWER PRODUCER 4	5	ST	BIT	P	ZZ	
94/01	MAAC		NJ	PSCO	NON-UTILITY BIDS	100	UN	UNK	P	ZZ	
94/01	MAAC		NJ	PSCO	SMALL QF'S - NUG	20	UN	UNK	P	ZZ	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] See page 127, footnote f.

[f] Part of CWLP's coal gasification/combined cycle demonstration plant.

[g] Contract expires.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
94/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	50[e]	ZZ	UNK	P	ZZ	
94/01	SERC	FL	FL	FLPL	Unsited Combined Cycle 1	385	CC	NG	P	U	
94/01	SERC	FL	FL	ORLA	Indian River CT C	38	GT	NG	P	U	
94/01	SERC	FL	FL	ORLA	Indian River CT D	38	GT	NG	P	U	
94/01	SERC	FL	FL	TAEC	CT2	75	GT	FO2	P	U	
94/01	SERC	SOU	MS	SOMI	MOSELLE	40	CW	WH	P	U	
94/01	SERC	VAC	NC	CAPO	Undesignated	250	UN	UNK	P	U	
94/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	2	CG	UNK	P	CG	
94/01	WSCC	CNV	CA	PG&E	UNID. ID & WA HYDRO 94	25	HY	WAT	P	U	
94/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #1	3	HY	WAT	T	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #2	3	HY	WAT	T	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #3	4	HY	WAT	T	U	
94/03	WSCC		MX	CFE	ENSENADA 1	150	ST	FO6	P	U	
94/04	ECAR		OH	CG&E	Woodsdale 1	60	GT	NG	L	U	
94/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
94/04	ECAR		UN	KU	Unknown	130	GT	FO2	P	U	
94/04	ERCOT		TX	TUEC	TWIN OAK #1	750	ST	LIG	U	U	
94/04	ERCOT		TX	TUEC	UNSPECIFIED[f]	100	UN	UNK	P	U	
94/04	WSCC	RMP	CO	CCS	STANLEY CANYON PUMP HYDR	64	PS	WAT	T	U	
94/04	WSCC	RMP	CO	PSC	FT LUPTON COGEN	150	CG	NG	L	CG	
94/04	WSCC	RMP	CO	PSC	FT ST VRAIN	330	ST	NG	P	ZZ	
94/05	ERCOT		TX	CPSA	MSW-LCP	37	ST	REF	P	U	
94/05	MAAC		UN	DPLC	NON-UTILITY GENERATION	100	UN	UNK	P	ZZ	
94/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	GT	FO2	P	U	
94/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	FO2	L	U	
94/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	40	UN	UNK	P	ZZ	
94/05	SERC	SOU	AL	ALAP	PEAKING	126	GT	NG	P	U	
94/05	SERC	SOU	FL	GUPC	CARYVILLE - PEAKING	126	GT	NG	P	U	
94/05	SERC	SOU	GA	GEPC	PEAKING	725	GT	NG	P	U	
94/05	SERC	SOU	GA	SAEP	PEAKING	158	GT	NG	P	U	
94/05	SERC	VAC	SC	SOCG	Undesignated 3	96	GT	NG	P	U	
94/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	280	UN	UNK	P	ZZ	
94/05	WSCC	CNV	CA	CDWR	MOJAVE SIPHON 1	7	HY	WAT	P	U	
94/05	WSCC	CNV	CA	CDWR	MOJAVE SIPHON 2	7	HY	WAT	P	U	
94/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
94/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
94/06	SERC	SOU	AL	ALEC	McWILLIAMS UNIT 4	100	CT	NG	P	U	
94/06	WSCC	CNV	NV	NEVP	CLARK 10	90	CW	NG	L	U	
94/06	WSCC	CNV	NV	NEVP	CLARK 7	70	CT	NG	L	U	
94/06	WSCC	CNV	NV	NEVP	CLARK 8	70	CT	NG	L	U	
94/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE 1	70	GT	FO2	P	U	
94/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
94/09	WSCC	NWP	WA	PSPL	NOISY CREEK	10	HY	WAT	L	U	
94/09	WSCC	NWP	WA	PSPL	SWIFT CREEK	9	HY	WAT	L	U	
94/09	WSCC	NWP	WA	SCL	SOUTH FORK TOLT	15	HY	WAT	L	U	
94/10	MAPP		SA	SPC	FUTURE HYDRO I 1	92	HY	WAT	P	U	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] See page 129, footnote i.

[f] Unspecified resources, may be one of the following: cogeneration, small producers, purchased power, deferred retirements, simple cycle or combined cycle combustion, additional load management or conservation, or baseload units.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
94/10	NPCC	ONT	ON	ONHY	KIPLING EXTN. 1	66	HY	WAT	P	U	
94/10	WSCC	NWP	WA	PSPL	NOOKSACK FALLS	8	HY	WAT	L	U	
94/11	NPCC	NB	NB	NBPO	PULVERIZED COAL #2	170	ST	COL	P	U	
94/11	SERC	FL	FL	FLPC	Combustion Turbine 1-2	240	GT	NG	P	U	
94/12	ERCOT		TX	HL&P	DOW CHEMICAL-NUG	-325[e]	GT	NG	P	CG	
94/12	MAIN	WUM	WI	MPU	MANITOWOC 8	60	ST	BIT	P	U	
SUBTOTAL						5874					
95/01	ECAR		UN	DECO	Total of 2 Facilities	6	UN	REF	P	ZZ	
95/01	ECAR		UN	DP&L	Undesignated	10	UN	UNK	P	ZZ	
95/01	ECAR		UN	EKPC	Unknown[f]	60	UN	UNK	P	U	
95/01	ECAR		UN	PSI	Unidentified	44	UN	UNK	P	ZZ	
95/01	ERCOT		TX	BEPC	UNDESIGNATED	208	CC	NG	P	U	
95/01	MAPP		NE	OPPD	FUTURE GT 1	80	GT	FO2	P	U	
95/01	NPCC	NE	ME	BAHE	BASIN MILLS	20.7	HY	WAT	P	U	
95/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	50[g]	ZZ	UNK	P	ZZ	
95/01	SERC	FL	FL	FLPL	SOLID WASTE FAC. 05	25	ZZ	REF	P	ZZ	
95/01	SERC	FL	FL	FLPL	Unsited Combined Cycle 2	385	CC	NG	P	U	
95/01	SERC	FL	FL	LALW	Unknown 1	50	GT	NG	P	U	
95/01	SERC	FL	FL	TAEC	CT3	75	GT	FO2	P	U	
95/01	SERC	VAC	NC	CAPO	Undesignated	250	UN	UNK	P	U	
95/01	WSCC	AZN	AZ	USLC	WADDELL (4)	45	PS	WAT	U	U	
95/01	WSCC	CNV	CA	LDWP	HARBOR CC	160	CT	NG	P	U	
95/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	3	CG	UNK	P	CG	
95/01	WSCC	CNV	CA	NCPA	GEO PLT. 3 UNIT 5	53	GE	GST	P	U	J
95/01	WSCC	CNV	CA	NCPA	UNIDENTIFIED PEAKING	25	ZZ	UNK	P	U	
95/01	WSCC	CNV	CA	PG&E	UNID. 1D & WA HYDRO 95	25	HY	WAT	P	U	
95/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 95	2	HY	WAT	P	U	
95/01	WSCC	CNV	CA	RDNG	LAKE REDDING	8	HY	WAT	L	U	
95/01	WSCC	NWP	ID	IPC	TWIN FALLS EXPANSION	6	HY	WAT	L	U	
95/03	ERCOT		TX	HL&P	BAYOU COGENERATION-NUG	-270[e]	GT	NG	P	CG	
95/04	ECAR		OH	CG&E	Woodsdale 2	60	GT	NG	L	U	
95/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
95/04	ERCOT		TX	TUEC	TWIN OAK #2	750	ST	LIG	U	U	
95/04	NPCC	ONT	ON	ONHY	SMOKEY FALLS EXTN. 1-2	182	HY	WAT	P	U	
95/04	WSCC	RMP	CO	PSC	COLO. POWER PROJECT #2	68	CG	NG	T	CG	
95/04	WSCC	RMP	CO	PSC	SILVER LAKE	2	HY	WAT	T	ZZ	
95/05	ECAR		UN	DECO	Unknown	100	UN	UNK	P	U	
95/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	CT	NG	P	U	
95/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	FO2	L	U	
95/05	MAPP		UN	NSP	FUTURE PEAKER 1	150	UN	UNK	P	U	
95/05	NPCC	NE	MA	NEES	RP MANCH 9,10,11	280	CC	NG	P	U	
95/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[h]	180	UN	UNK	L	ZZ	
95/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	50	UN	UNK	P	ZZ	
95/05	SERC	SOU	AL	ALAP	PEAKING	378	GT	NG	P	U	
95/05	SERC	SOU	GA	GEPC	PEAKING	504	GT	NG	P	U	
95/05	SERC	SOU	MS	MIPR	PEAKING	126	GT	NG	P	U	
95/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	175	UN	UNK	P	ZZ	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] Contract expires.

[f] Best combination of combustion turbines, load management, dispersed generation and/or firm purchases.

[g] See page 129, footnote i.

[h] See page 127, footnote f.

Generating Unit Additions (Utility and Non-Utility)[a]

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
95/05	SPP	N	MO	MIPU	RALPH GREEN 4	62	GT	NG	L	U	
95/05	SPP	N	MO	STJO	LAKE ROAD 8	65	GT	NG	P	U	
95/06	MAIN	WUM	WI	MGE	COMBUSTION TURBINE	72	UN	NG	P	U	
95/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
95/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
95/06	NPCC	NE	MA	COMW	COMBINED CYCLE [e]	96.7	CC	NG	P	U	
95/06	SPP	N	MO	EMDE	ENERGY CENTER 3	75	CA	NG	P	U	
95/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE 2	70	GT	FO2	P	U	
95/06	WSCC	NWP	WA	TCL	HOWARD HANSON 1-3	0	HY	WAT	P	U	
95/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
95/07	WSCC	NWP	OR	PGE	MISC. RESOURCES	55	ZZ	UNK	P	ZZ	
95/09	WSCC	NWP	WA	TCL	ELKHORN 1-2	0	HY	WAT	P	U	
95/10	ECAR		MD	APS	AES Cumberland	180	ST	COL	P	ZZ	
95/10	ECAR		UN	APS	PURPA 2	130	ST	COG	P	ZZ	
95/10	ECAR		UN	APS	PURPA Contingency	-25[f]	UN	UNK	P	ZZ	
95/10	MAPP		SA	SPC	FUTURE PEAKING 3	46	GT	NG	P	U	
95/10	NPCC	NS	NS	NSPC	PT. ACONI 2	150	ST	BIT	P	U	
95/10	SERC	TVA	TN	TVA	WATTS BAR NO.2[g]	1170	NP	UR	V	U	
95/10	WSCC		AB	TAUC	GAS TURBINE 1	81	GT	NG	P	U	
95/11	NPCC	ONT	ON	ONHY	HARMON EXTN. 1	74	HY	WAT	P	U	
95/11	SERC	FL	FL	FLPC	Combustion Turbine 3	120	GT	NG	P	U	
95/12	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-70[h]	CG	UNK	P	CG	
95/12	NPCC	QUE	QB	HYQB	Brisay 1-2	460	HY	WAT	L	U	
95/12	NPCC	QUE	QB	HYQB	La Grande 1 1-12	1368	HY	WAT	T	U	
95/12	NPCC	QUE	QB	HYQB	Laforge 1 1-6	829	HY	WAT	T	U	
SUBTOTAL						9894					
96/01	ECAR		UN	DECO	Total of 2 Facilities	11	UN	REF	P	ZZ	
96/01	ECAR		UN	DP&L	Undesignated	9	UN	UNK	P	ZZ	
96/01	ECAR		UN	EKPC	Unknown[i]	60	UN	UNK	P	U	
96/01	ERCOT		TX	BEPC	UNDESIGNATED	68	GT	NG	P	U	
96/01	ERCOT		TX	ST&M	SAN MIGUEL #2	200	ST	LIG	P	U	
96/01	MAPP		NE	OPPD	FUTURE GT 2	80	GT	FO2	P	U	
96/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[j]	ZZ	UNK	P	ZZ	
96/01	SERC	FL	FL	FLPL	SOLID WASTE FAC. 02	40	ZZ	REF	P	ZZ	
96/01	SERC	FL	FL	FLPL	Unsited Integrated Coal 1	768	IG	BIT	P	U	
96/01	SERC	FL	FL	TAEC	CT4	75	GT	FO2	P	U	
96/01	SERC	VAC	NC	CAPO	Undesignated	250	UN	UNK	P	U	
96/01	WSCC	AZN	AZ	APS	GENERIC COGEN 1	2	CG	UNK	L	CG	
96/01	WSCC	AZN	AZ	APS	REFUSE 1	10	ZZ	REF	L	ZZ	
96/01	WSCC	AZN	TX	EPE	GENERIC STATION	75	GT	NG	P	U	
96/01	WSCC	CNV	CA	LDWP	GENERIC 1996	200	ZZ	UNK	P	U	
96/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	2	CG	UNK	P	CG	
96/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 96	37	HY	WAT	L	U	
96/01	WSCC	CNV	CA	RDNG	LAKE RED BLUFF	4	HY	WAT	L	U	
96/03	SERC	SOU	GA	GEPC	ROCKY MOUNTAIN UNITS 1 - 3	848	PS	WAT	U	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 1	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 2	105	GT	NG	P	U	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] Hypothetical unit to fill anticipated resource requirement. Resources may actually come from some other resources than those shown.

[f] See page 134, footnote e.

[g] See page 135, footnote g.

[h] Contract expires.

[i] See page 139, footnote f.

[j] See page 129, footnote i.

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Generating Unit Additions (Utility and Non–Utility)[a]
(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
96/03	WSCC		MX	CFE	ENSENADA 2	150	ST	FO6	P	U	
96/03	WSCC	NWP	ID	TCL	A.J. WILEY 1-3	0	HY	WAT	P	U	
96/04	ECAR		OH	CG&E	Woodsdale 3	60	GT	NG	L	U	
96/04	ECAR		OH	CG&E	Woodsdale 4	60	GT	NG	L	U	
96/04	ECAR		OH	CG&E	Woodsdale 5	60	GT	NG	L	U	
96/04	ECAR		OH	CG&E	Woodsdale 6	60	GT	NG	L	U	
96/04	ECAR		OH	CG&E	Woodsdale 7	60	GT	NG	L	U	
96/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
96/04	ECAR		UN	KU	Unknown	130	GT	FO2	P	U	
96/04	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	CT	NG	P	U	
96/04	ERCOT		TX	TUEC	UNSPECIFIED[e]	50	UN	UNK	P	U	
96/05	ECAR		UN	DECO	Unknown	200	UN	UNK	P	U	
96/05	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	15	UN	UNK	P	U	
96/05	MAAC		UN	GPUS	COMBINED CYCLE	100	CW	NG	P	U	
96/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	CT	NG	P	U	
96/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	GT	FO2	P	U	
96/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	FO2	L	U	
96/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[f]	70	UN	REF	P	ZZ	
96/05	NPCC	ONT	ON	ONHY	LITTLE LONG EXTN. 1	51	HY	WAT	P	U	
96/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	25	UN	UNK	P	ZZ	
96/05	SERC	SOU	GA	GEPC	PEAKING	126	GT	NG	P	U	
96/05	SERC	VAC	SC	SOCG	Undesignated 4	34	CW	WH	P	U	
96/05	SERC	VAC	SC	SOCG	Undesignated 4	74	CT	NG	P	U	
96/05	SPP	N	MO	MIPU	RALPH GREEN 2	20	CW	NG	L	U	
96/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
96/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
96/06	NPCC	NY	NY	POAS	NIAGARA FALLS	330	HY	WAT	L	U	
96/06	SERC	SOU	AL	ALEC	CAES UNIT 2[g]	110	ZZ	NG	P	U	
96/06	SPP	N	MO	EMDE	UNKNOWN 96	32	GT	NG	P	U	
96/06	SPP	N	MO	KACP	HAWTHORN 4	113	ST	NG	P	U	
96/06	WSCC	CNV	CA	SDGE	COMBINED CYCLE 1	160	CT	NG	P	U	
96/06	WSCC	CNV	CA	SDGE	COMBINED CYCLE 1	40	CW	WH	P	U	
96/06	WSCC	CNV	CA	SDGE	COMBINED CYCLE 2	160	CT	NG	P	U	
96/06	WSCC	CNV	CA	SDGE	COMBINED CYCLE 2	40	CW	WH	P	U	
96/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE 3	70	GT	FO2	P	U	
96/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE 4	70	GT	FO2	P	U	
96/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
96/10	MAPP		SA	SPC	FUTURE FOSSIL 1	276	ST	LIG	P	U	
96/10	WSCC		AB	TAUC	NEW STEAM 1	360	ST	SUB	P	U	
96/11	NPCC	NE	VT	VTGP	NEWPORT 2	6.8	HY	WAT	P	U	
96/11	NPCC	ONT	ON	ONHY	LITTLE JACKFISH 1-2	129	HY	WAT	P	U	
96/12	ERCOT		TX	HL&P	MALAKOFF #1	645	ST	LIG	T	U	
96/12	ERCOT		TX	WETU	RIO PECOS #5	42	CW	NG	P	U	
96/12	ERCOT		TX	WETU	RIO PECOS #5	88	CT	NG	P	U	
96/12	NPCC	QUE	QB	HYQB	Laforge 2 1-2	270	HY	WAT	T	U	
SUBTOTAL						8406					
97/01	ECAR		UN	DP&L	Undesignated	9	UN	UNK	P	ZZ	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] See page 138, footnote f.

[f] See page 127, footnote f.

[g] Compressed air energy storage.

APPENDIX D

North American
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Generating Unit Additions (Utility and Non–Utility)[a]
(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
97/01	ECAR		UN	EKPC	Unknown[e]	60	UN	UNK	P	U	
97/01	ECAR		UN	PSI	Unidentified	64	UN	UNK	P	ZZ	
97/01	ERCOT		TX	BEPC	UNDESIGNATED	68	GT	NG	P	U	
97/01	MAPP		NE	OPPD	FUTURE GT 3	80	GT	FO2	P	U	
97/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[f]	ZZ	UNK	P	ZZ	
97/01	SERC	FL	FL	FLPL	BIOMASS FACILITY 04	10	ZZ	NG	P	ZZ	
97/01	SERC	FL	FL	ORLA	Stanton Energy Center #2	173	ST	BIT	P	U	
97/01	SERC	FL	FL	TAEC	CT5	75	GT	FO2	P	U	
97/01	SERC	SOU	MS	SOMI	MOSELLE	80	CT	NG	P	U	
97/01	SERC	VAC	NC	CAPO	Undesignated	250	UN	UNK	P	U	
97/01	WSCC	AZN	AZ	APS	GENERIC COGEN 2	2	CG	UNK	L	CG	
97/01	WSCC	AZN	AZ	APS	SOLAR 2	8	SO	SUN	P	U	
97/01	WSCC	CNV	CA	LDWP	GENERIC 1997	100	ZZ	UNK	P	U	
97/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	3	CG	UNK	P	CG	
97/01	WSCC	CNV	CA	PG&E	UNID. ID & WA HYDRO 97	25	HY	WAT	P	U	
97/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 97	109	HY	WAT	P	U	
97/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 97	2	HY	WAT	P	U	
97/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 3	160	CT	NG	P	U	
97/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 3	40	CW	WH	P	U	
97/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
97/01	WSCC	NWP	OR	PGE	MISC. RESOURCES	135	CG	UNK	P	CG	
97/03	SPP	N	MO	KACP	HAWTHORN 3	108	ST	NG	P	U	
97/04	ECAR		OH	CG&E	Woodsdale 8	60	GT	NG	L	U	
97/04	ECAR		OH	CG&E	Woodsdale 9	60	GT	NG	L	U	
97/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
97/04	ERCOT		TX	TUEC	FOREST GROVE #1	750	ST	LIG	U	U	
97/04	WSCC	RMP	CO	CCS	NIXON CT 1	54	GT	NG	P	U	
97/05	ECAR		UN	DECO	Unknown	200	UN	UNK	P	U	
97/05	ERCOT		TX	CPSA	J. K. SPRUCE #2	498	ST	COL	P	U	
97/05	MAAC		UN	DPLC	CFB 1[g]	150	ZZ	UNK	P	U	
97/05	MAAC		UN	GPUS	COMBINED CYCLE	100	CW	NG	P	U	
97/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	CT	NG	P	U	
97/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	GT	FO2	P	U	
97/05	MAPP		UN	NSP	FUTURE PEAKER 2	150	UN	UNK	P	U	
97/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	25	UN	UNK	P	ZZ	
97/05	SERC	SOU	AL	ALAP	PEAKING	252	GT	NG	P	U	
97/05	SERC	SOU	FL	GUPC	CARYVILLE - PEAKING	126	GT	NG	P	U	
97/05	SERC	SOU	GA	GEPC	PEAKING	473	GT	NG	P	U	
97/05	SERC	SOU	MS	MIPR	PEAKING	32	GT	NG	P	U	
97/05	SERC	VAC	SC	SOCG	Undesignated 5	34	CW	WH	P	U	
97/05	SERC	VAC	SC	SOCG	Undesignated 5	74	CT	NG	P	U	
97/05	SPP	WC	OK	OKGE	COGENERATOR - MCPC	100	CT	NG	P	CG	
97/06	MAAC		MD	BCCO	BC CT 1	125	CT	NG	P	U	
97/06	MAIN	WUM	WI	MGE	SOLID WASTE	12	UN	REF	P	ZZ	
97/06	MAIN	WUM	WI	WPS	COGEN	50	ST	UNK	P	CG	
97/06	SPP	N	MO	EMDE	UNKNOWN 97	80	GT	COL	P	U	
97/06	WSCC	CNV	NV	NEVP	ALLEN 1	125	ST	BIT	P	U	
97/07	ECAR		KY	LG&E	Cane Run 12	75	GT	NG	P	U	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] See page 139, footnote f.

[f] See page 129, footnote i.

[g] Circulating fluidized bed unit.

Generating Unit Additions (Utility and Non-Utility)[a]
(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
97/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
97/07	WSCC	NWP	OR	PGE	MISC. RESOURCES	60	ZZ	UNK	P	ZZ	
97/09	WSCC	NWP	WA	PSPL	TYE RIVER	10	HY	WAT	L	U	
97/10	NPCC	NS	NS	NSPC	PT. ACONI 3	150	ST	BIT	P	U	
97/10	SERC	TVA	AL	TVA	BELLEFONTE NO.1[e]	1212	NP	UR	V	U	
97/10	WSCC		AB	TAUC	GAS TURBINE 2	81	GT	NG	P	U	
97/11	NPCC	NB	NB	NBPO	PULVERIZED COAL #3	450	ST	COL	P	U	
97/12	ERCOT		TX	WETU	RIO PECOS #6	33	CT	NG	P	U	
97/12	NPCC	QUE	QB	HYQB	Manic 3 A 1-2	570	HY	WAT	P	U	
SUBTOTAL						8287					
98/01	ECAR		UN	DECO	One Facility	10	UN	REF	P	ZZ	
98/01	ECAR		UN	DP&L	Undesignated	9	UN	UNK	P	ZZ	
98/01	ECAR		UN	EKPC	Unknown[f]	60	UN	UNK	P	U	
98/01	ERCOT		TX	BEPC	UNDESIGNATED	68	GT	NG	P	U	
98/01	MAPP		MN	SMMP	FUTURE COMB CYCLE 1	80	CT	NG	P	U	
98/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[g]	ZZ	UNK	P	ZZ	
98/01	SERC	FL	FL	FLPL	SOLID WASTE EXP. 03	20	ZZ	REF	P	ZZ	
98/01	SERC	FL	FL	LALW	Unknown 2	50	GT	NG	P	U	
98/01	SERC	SOU	MS	SOMI	MOSELLE	40	CW	WH	P	U	
98/01	SERC	VAC	NC	CAPO	Undesignated	500	UN	UNK	P	U	
98/01	WSCC	CNV	CA	LDWP	GENERIC 1998	200	ZZ	UNK	P	U	
98/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	2	CG	UNK	P	CG	
98/01	WSCC	CNV	CA	NCPA	UNIDENTIFIED PEAKING	25	ZZ	UNK	P	U	
98/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 98	17	HY	WAT	P	U	
98/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 98	2	HY	WAT	P	U	
98/01	WSCC	CNV	CA	RDNG	SPRING CREEK PS	100	PS	WAT	L	U	
98/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
98/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
98/03	SPP	N	MO	KACP	COMB. TURBINE 3	105	GT	NG	P	U	
98/04	ECAR		OH	CG&E	Woodsdale 10	60	GT	NG	L	U	
98/04	ECAR		OH	CG&E	Woodsdale 11	60	GT	NG	L	U	
98/04	ECAR		OH	CG&E	Woodsdale 12	60	GT	NG	L	U	
98/04	ECAR		UN	CG&E	New GT 1	60	GT	NG	P	U	
98/04	ECAR		UN	KU	Unknown	130	GT	FO2	P	U	
98/04	ERCOT		TX	TUEC	UNSPECIFIED[h]	350	UN	UNK	P	U	
98/04	SERC	FL	FL	JACO	Future 1	140	GT	FO2	V	U	
98/04	WSCC	RMP	CO	PSC	PAWNEE 2	485	ST	BIT	P	U	
98/05	ECAR		UN	DECO	Unknown	100	UN	UNK	P	U	
98/05	MAAC		UN	GPUS	COMBINED CYCLE	100	CW	NG	P	U	
98/05	MAAC		UN	GPUS	COMBUSTION TURBINES	300	GT	FO2	P	U	
98/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	FO2	L	U	
98/05	MAPP		UN	NSP	FUTURE BASE 1	400	UN	UNK	P	U	
98/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[i]	45	UN	REF	P	ZZ	
98/05	SERC	SOU	AL	ALAP	PEAKING	252	GT	NG	P	U	
98/05	SERC	SOU	GA	GEPC	PEAKING	756	GT	NG	P	U	
98/05	SERC	VAC	SC	SOCG	Undesignated 6	34	CW	WH	P	U	
98/05	SERC	VAC	SC	SOCG	Undesignated 6	74	CT	NG	P	U	

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] See page 135, footnote g.

[f] See page 139, footnote f.

[g] See page 129, footnote i.

[h] See page 138, footnote f.

[i] See page 127, footnote f.

Generating Unit Additions (Utility and Non-Utility)[a]

(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
98/05	SPP	WC	OK	OKGE	UNKNOWN 98	240	GT	NG	P	U	
98/06	ERCOT		TX	HL&P	AES DEEPWATER-NUG	-136[e]	ST	PC	P	CG	
98/06	MAAC		MD	BCCO	BC CT 2	125	CT	NG	P	U	
98/06	MAIN	WUM	WI	MGE	COMBUSTION TURBINE	36	UN	NG	P	U	
98/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
98/06	MAIN	WUM	WI	WPS	COGEN	17	ST	UNK	P	CG	
98/06	SERC	SOU	AL	ALEC	COMBUSTION TURBINE UNIT 1	75	GT	NG	P	U	
98/06	SERC	SOU	AL	ALEC	COMBUSTION TURBINE UNIT 2	75	GT	NG	P	U	
98/06	SERC	SOU	AL	ALEC	FOSSIL UNIT 1	125	ST	LIG	P	U	
98/06	SPP	N	MO	EMDE	UNKNOWN 98	32	GT	NG	P	U	
98/06	SPP	N	MO	SPRM	UNDETERMINED	70	ST	COL	P	U	
98/07	ERCOT		TX	LCRA	BASE LOAD	400	ST	SUB	P	U	
98/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
98/08	WSCC		BC	BCHA	KEENLEYSIDE 1	80	HY	WAT	P	U	
98/10	NPCC	NS	NS	NSPC	NEW COAL A 1	150	ST	BIT	P	U	
98/10	WSCC		AB	TAUC	NEW STEAM 2	360	ST	SUB	P	U	
98/11	NPCC	ONT	ON	ONHY	NIAGARA RIVER 1-2	550	HY	WAT	P	U	
98/12	ERCOT		TX	HL&P	MALAKOFF #2	645	ST	LIG	T	U	
98/12	MAPP		UN	OTP	FUTURE GT 1	22	GT	FO2	P	U	
98/12	NPCC	QUE	QB	HYQB	Grande Baleine GB-1	1187	HY	WAT	P	U	
98/12	NPCC	QUE	QB	HYQB	Ste-Marguerite	822	HY	WAT	P	U	
98/12	WSCC		BC	BCHA	KEENLEYSIDE 2	80	HY	WAT	P	U	
98/12	WSCC	NWP	WA	BPA	WNP 1[f]	0[g]	NP	UR	V	U	
98/12	WSCC	NWP	WA	BPA	WNP 3[f]	0[g]	NP	UR	V	U	
SUBTOTAL						9925					
Under Review[h]	ECAR		OH	CE	Perry 2	1182[g]	NB	UR	V	U	J
SUBTOTAL						1182					
TOTAL						94738	(93,556)[g]				

[a,b,c,d] See page 127, footnotes a, b, c, and d, respectively.

[e] Contract expires.

[f] Construction suspended on WNP 1 and WNP 3. Designated as a 2490 MW 'secured option'.

[g] WNP 1, WNP 3, and Perry 2 nuclear units were not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. The units are listed here for information only.

[h] Construction activity on Perry 2 has been suspended. Options with respect to the completion and timing of Perry 2 are being evaluated. A decision regarding the completion of the unit is not expected until all options have been evaluated.

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Nuclear Generating Unit Additions[a]
(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/06	ERCOT		TX	HL&P	South Texas Project #2	1250	NP	UR	V	U	J
89/06	SERC	SOU	GA	GEPC	VOGTLE UNIT 2	1086	NP	UR	V	U	J
89/09	NPCC	ONT	ON	ONHY	DARLINGTON 2	881	CD	UR	V	U	
89/12	ERCOT		TX	TUEC	COMANCHE PEAK #1	1150	NP	UR	V	U	J
SUBTOTAL						4367					
90/01	NPCC	NE	NH	PSNH	SEABROOK 1[e]	1150	NP	UR	V	U	
90/01	NPCC	NY	NY	LOIL	SHOREHAM[f]	809	NB	UR	V	U	
90/04	NPCC	ONT	ON	ONHY	DARLINGTON 1	881	CD	UR	V	U	
90/05	MAAC		PA	PECO	LIMERICK 2	1055	NB	UR	V	U	
SUBTOTAL						3895					
91/05	NPCC	ONT	ON	ONHY	DARLINGTON 3	881	CD	UR	V	U	
91/06	ERCOT		TX	TUEC	Comanche Peak #2	1150	NP	UR	V	U	J
SUBTOTAL						2031					
92/02	NPCC	ONT	ON	ONHY	DARLINGTON 4	881	CD	UR	U	U	
92/04[g]	SERC	TVA	TN	TVA	WATTS BAR NO.1	1170	NP	UR	V	U	
SUBTOTAL						2051					
95/10[g]	SERC	TVA	TN	TVA	WATTS BAR NO.2	1170	NP	UR	V	U	
SUBTOTAL						1170					
97/10[g]	SERC	TVA	AL	TVA	BELLEFONTE NO.1	1212	NP	UR	V	U	
SUBTOTAL						1212					
98/12	WSCC	NWP	WA	BPA	WNP 1[h]	0[i]	NP	UR	V	U	
98/12	WSCC	NWP	WA	BPA	WNP 3[h]	0[i]	NP	UR	V	U	
SUBTOTAL						0					
Under Review[j]	ECAR		OH	CE	Perry 2	1182[i]	NB	UR	V	U	J
SUBTOTAL						1182					
TOTAL						15908 (14,726)[i]					

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[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] Public Service of New Hampshire (PSNH) is unable to predict when the Seabrook plant will be permitted to commence operation. However, for planning and reporting purposes, New England Power Planning (NEPLAN) is assuming commercial operation by January 1, 1990.

[f] Shoreham construction is completed, awaiting NRC operating license.

[g] TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. The dates are for long range planning purposes only.

[h] Construction suspended on WNP 1 and WNP 3. Designated as a 2490 MW 'secured option'.

[i] WNP 1, WNP 3, and Perry 2 were not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. The units are listed here for information only.

[j] Construction activity on Perry 2 has been suspended. Options with respect to the completion and timing of Perry 2 are being evaluated. A decision regarding the completion of the unit is not expected until all options have been evaluated.

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Coal-Fired Generating Unit Additions[a]

(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/03	SERC	SOU	GA	GEPC	SCHERER UNIT 4	848	ST	BIT	V	U	
89/05	SERC	SOU	AL	ALAP	MILLER UNIT 3	667	ST	BIT	V	U	
89/05	SPP	SE	LA	LAFA	RODEMACHER 2	3	ST	BIT	P	U	
89/10	WSCC		AB	EDMP	GENESEE 2	386	ST	SUB	V	U	
89/12	ECAR		IN	AEP	Rockport 2	1300	ST	COL	V	U	
SUBTOTAL						3204					
90/01	SPP	SE	LA	LEPA	RODEMACHER UNIT #2	81	ST	COL	P	U	
90/04	MAIN	WUM	WI	MPU	BOILER ADDITION	13	ST	BIT	P	U	
90/06	WSCC	AZN	AZ	TEP	SPRINGERVILLE 2	360	ST	SUB	V	U	
90/10	WSCC		AB	TAUC	SHEERNESS 2	366	ST	SUB	V	U	J
SUBTOTAL						820					
91/05	SERC	SOU	AL	ALAP	MILLER UNIT 4	667	ST	BIT	V	U	
91/06	ECAR		OH	CG&E	W.H. Zimmer 1[e]	1300	ST	COL	U	U	J
91/07	ECAR		KY	LG&E	Trimble County 1	495	ST	COL	V	U	
91/10	NPCC	NS	NS	NSPC	TRENTON 6	150	ST	BIT	U	U	
91/10	WSCC		AB	EDMP	GENESEE 1	386	ST	SUB	U	U	
SUBTOTAL						2998					
92/04	MAAC		MD	BCCO	BRANDON SHORES 2	640	ST	BIT	U	U	
92/05	ERCOT		TX	CPSA	J. K. SPRUCE #1	498	ST	COL	U	U	
92/07	MAPP		SA	SPC	SHAND 1	280	ST	LIG	L	U	
SUBTOTAL						1418					
93/06	MAIN	SCI	IL	CWLP	LAKESIDE 4[f]	20	CA	COL	P	U	
93/06	MAIN	SCI	IL	CWLP	LAKESIDE GT2[f]	36	CT	COL	P	U	
93/10	NPCC	NS	NS	NSPC	PT. ACONI 1	150	ST	BIT	L	U	
93/11	NPCC	NB	NB	NBPO	PULVERIZED COAL #1	450	ST	COL	L	U	
SUBTOTAL						656					
94/04	ERCOT		TX	TUEC	TWIN OAK #1	750	ST	LIG	U	U	
94/11	NPCC	NB	NB	NBPO	PULVERIZED COAL #2	170	ST	COL	P	U	
94/12	MAIN	WUM	WI	MPU	MANITOWOC 8	60	ST	BIT	P	U	
SUBTOTAL						980					
95/04	ERCOT		TX	TUEC	TWIN OAK #2	750	ST	LIG	U	U	
95/10	NPCC	NS	NS	NSPC	PT. ACONI 2	150	ST	BIT	P	U	
SUBTOTAL						900					
96/01	ERCOT		TX	ST&M	SAN MIGUEL #2	200	ST	LIG	P	U	
96/01	SERC	FL	FL	FLPL	Unsited Integrated Coal 1	768	IG	BIT	P	U	
96/10	MAPP		SA	SPC	FUTURE FOSSIL 1	276	ST	LIG	P	U	
96/10	WSCC		AB	TAUC	NEW STEAM 1	360	ST	SUB	P	U	
96/12	ERCOT		TX	HL&P	MALAKOFF #1	645	ST	LIG	T	U	
SUBTOTAL						2249					
97/01	SERC	FL	FL	ORLA	Stanton Energy Center #2	173	ST	BIT	P	U	

[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] The owners of this plant, which has been under construction as a nuclear unit, announced on January 21, 1984 that the plant design will be converted from nuclear to coal-fired.

[f] Part of CWLP's coal gasification/combined cycle demonstration plant.

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Coal–Fired Generating Unit Additions[a]

(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
97/04	ERCOT		TX	TUEC	FOREST GROVE #1	750	ST	LIG	U	U	
97/05	ERCOT		TX	CPSA	J. K. SPRUCE #2	498	ST	COL	L		
97/06	SPP	N	MO	EMDE	UNKNOWN 97	80	GT	COL	P	U	
97/06	WSCC	CNV	NV	NEVP	ALLEN 1	125	ST	BIT	P	U	
97/10	NPCC	NS	NS	NSPC	PT. ACONI 3	150	ST	BIT	P	U	
97/11	NPCC	NB	NB	NBPO	PULVERIZED COAL #3	450	ST	COL	P	U	
SUBTOTAL						2226					
98/04	WSCC	RMP	CO	PSC	PAWNEE 2	485	ST	BIT	P	U	
98/06	SERC	SOU	AL	ALEC	FOSSIL UNIT 1	125	ST	LIG	P	U	
98/06	SPP	N	MO	SPRM	UNDETERMINED	70	ST	COL	P	U	
98/07	ERCOT		TX	LCRA	BASE LOAD	400	ST	SUB	P	U	
98/10	NPCC	NS	NS	NSPC	NEW COAL A 1	150	ST	BIT	P	U	
98/10	WSCC		AB	TAUC	NEW STEAM 2	360	ST	SUB	P	U	
98/12	ERCOT		TX	HL&P	MALAKOFF #2	645	ST	LIG	T	U	
SUBTOTAL						2235					
TOTAL						17686					

[a,b,c,d] See page 146, footnotes a, b, c, and d, respectively.

Hydro (Conventional) Generating Unit Additions[a]
(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/02	WSCC	CNV	CA	SNCL	BLACK BUTTE DAM	6	HY	WAT	V	U	
89/02	WSCC	CNV	CA	SNCL	HIGH LINE CANAL	0	HY	WAT	V	U	
89/04	WSCC	AZN	NM	LAC	ABIQUIU 1	7	HY	WAT	V	U	
89/04	WSCC	AZN	NM	LAC	ABIQUIU 2	7	HY	WAT	V	U	
89/05	NPCC	QUE	QB	HYQB	Manic 5 P.A. 1	264	HY	WAT	V	U	
89/05	SPP	WC	OK	OMPA	KAW HYDRO	25	HY	WAT	U	U	
89/05	WSCC	CNV	CA	TID	DON PEDRO UNIT 4	32	HY	WAT	V	U	J
89/06	WSCC	CNV	CA	CCSF	MOCCASIN	2	HY	WAT	V	U	
89/07	NPCC	QUE	QB	HYQB	Manic 5 P.A. 2	264	HY	WAT	V	U	
89/09	NPCC	QUE	QB	HYQB	Manic 5 P.A. 3	264	HY	WAT	V	U	
89/11	NPCC	QUE	QB	HYQB	Manic 5 P.A. 4	264	HY	WAT	V	U	
SUBTOTAL						1135					
90/01	WSCC	CNV	CA	NCPA	Hydroelec. Proj No. One	200	HY	WAT	V	U	J
90/04	NPCC	NE	VT	VTGP	HIGHGATE FALLS	3.1	HY	WAT	U	U	
90/05	WSCC	NWP	UT	UAMP	PINEVIEW	2	HY	WAT	U	U	
90/07	NPCC	NY	NY	POAS	PASNY NEW HYDRO	12	HY	WAT	U	U	
90/09	NPCC	NE	ME	CEMP	MONTY	25	HY	WAT	U	U	
90/11	MAPP		MB	MHEB	LIMESTONE 1	120	HY	WAT	U	U	
90/12	MAPP		MB	MHEB	LIMESTONE 2	120	HY	WAT	U	U	
SUBTOTAL						482					
91/01	WSCC	NWP	WA	TCL	WYNOCHEE 1	0	HY	WAT	T	U	
91/02	MAPP		MB	MHEB	LIMESTONE 3	120	HY	WAT	U	U	
91/03	WSCC	RMP	WY	USGP	SHOSHONE	21	HY	WAT	U	U	
91/04	MAPP		MB	MHEB	LIMESTONE 4	120	HY	WAT	U	U	
91/05	ECAR		OH	HAMI	Hydro	5	HY	WAT	P	U	
91/07	MAPP		MB	MHEB	LIMESTONE 5	120	HY	WAT	U	U	
91/07	WSCC	NWP	UT	UAMP	EAST CANYON 1 & 2	2	HY	WAT	L	U	
91/07	WSCC	NWP	UT	UAMP	LOST CREEK	1	HY	WAT	T	U	
91/10	MAPP		MB	MHEB	LIMESTONE 6	120	HY	WAT	U	U	
91/10	NPCC	QUE	QB	HYQB	LG 2A P.A. 1	316	HY	WAT	V	U	
91/10	WSCC	RMP	CO	USUC	MCPHEE POWER PLANT	1	HY	WAT	V	U	
91/11	NPCC	NE	VT	VTGP	NEWPORT 1	0.2	HY	WAT	P	U	
91/12	MAPP		MB	MHEB	LIMESTONE 7	120	HY	WAT	U	U	
91/12	NPCC	QUE	QB	HYQB	HART JAUNE 1-2-3	48	HY	WAT	P	U	
91/12	NPCC	QUE	QB	HYQB	LG 2A P.A. 2	316	HY	WAT	V	U	
91/12	WSCC	CNV	CA	CDWR	DEVIL CANYON 3	80	HY	WAT	U	U	
91/12	WSCC	CNV	CA	CDWR	DEVIL CANYON 4	80	HY	WAT	U	U	
SUBTOTAL						1470					
92/03	NPCC	QUE	QB	HYQB	LG 2A P.A. 3	316	HY	WAT	V	U	
92/04	NPCC	NE	VT	VTGP	C. RUTLAND	0.3	HY	WAT	P	U	
92/05	MAPP		MB	MHEB	LIMESTONE 8	120	HY	WAT	U	U	
92/05	WSCC	NWP	WA	PSPL	WHITE RIVER FLUME	14	HY	WAT	L	U	
92/06	NPCC	NY	NY	NIMP	SOUTH GLENS FALLS	13.8	HY	WAT	L	U	
92/06	NPCC	QUE	QB	HYQB	LG 2A P.A. 4	316	HY	WAT	V	U	

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[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

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Hydro (Conventional) Generating Unit Additions[a]
(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
92/07	WSCC	NWP	ID	USPN	MINIDOKA 1-5	12	HY	WAT	P	U	
92/07	WSCC	RMP	CO	USUC	TOWAOC	11	HY	WAT	U	U	
92/08	MAPP		MB	MHEB	LIMESTONE 9	120	HY	WAT	U	U	
92/09	NPCC	QUE	QB	HYQB	LG 2A P.A. 5	316	HY	WAT	V	U	
92/09	WSCC	RMP	CO	USUC	Ridgeway Power Plant	4	HY	WAT	T	U	
92/11	MAPP		MB	MHEB	LIMESTONE 10	120	HY	WAT	U	U	
92/11	NPCC	NE	VT	VTGP	FAIRFAX FALLS	2.8	HY	WAT	P	U	
92/12	NPCC	NE	MA	NEES	VERNON	20	HY	WAT	P	U	
92/12	NPCC	QUE	QB	HYQB	LG 2A P.A. 6	316	HY	WAT	V	U	
SUBTOTAL						1702					
93/01	NPCC	NE	ME	BAHE	MILTON	1.7	HY	WAT	P	U	
93/01	NPCC	NE	ME	BAHE	VEAZIE	4.8	HY	WAT	P	U	
93/01	NPCC	NY	NY	NIMP	OSWEGO FALLS WEST	5.5	HY	WAT	L	U	
93/01	NPCC	ONT	ON	ONHY	LAKE GIBSON	5	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. ID & WA HYDRO 93	25	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 93	2	HY	WAT	L	U	
93/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 93	20	HY	WAT	L	U	
93/06	MAIN	WUM	WI	WEP	HYDRO	3	HY	WAT	P	U	
93/06	NPCC	NE	MA	NEES	BELLOWS FALLS	6	HY	WAT	P	U	
93/06	WSCC	NWP	WA	TCL	BARRIER 1-2	0	HY	WAT	P	U	
93/07	NPCC	NY	NY	NIMP	HUDSON FALLS	36.1	HY	WAT	L	U	
93/12	WSCC	NWP	WA	PSPL	THUNDER CREEK	6	HY	WAT	L	U	
SUBTOTAL						115					
94/01	WSCC	CNV	CA	PG&E	UNID. ID & WA HYDRO 94	25	HY	WAT	P	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #1	3	HY	WAT	T	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #2	3	HY	WAT	T	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #3	4	HY	WAT	T	U	
94/05	WSCC	CNV	CA	CDWR	MOJAVE SIPHON 1	7	HY	WAT	P	U	
94/05	WSCC	CNV	CA	CDWR	MOJAVE SIPHON 2	7	HY	WAT	P	U	
94/09	WSCC	NWP	WA	PSPL	NOISY CREEK	10	HY	WAT	L	U	
94/09	WSCC	NWP	WA	PSPL	SWIFT CREEK	9	HY	WAT	L	U	
94/09	WSCC	NWP	WA	SCL	SOUTH FORK TOLT	15	HY	WAT	L	U	
94/10	MAPP		SA	SPC	FUTURE HYDRO I 1	92	HY	WAT	P	U	
94/10	NPCC	ONT	ON	ONHY	KIPLING EXTN. 1	66	HY	WAT	P	U	
94/10	WSCC	NWP	WA	PSPL	NOOKSACK FALLS	8	HY	WAT	L	U	
SUBTOTAL						249					
95/01	NPCC	NE	ME	BAHE	BASIN MILLS	20.7	HY	WAT	P	U	
95/01	WSCC	CNV	CA	PG&E	UNID. ID & WA HYDRO 95	25	HY	WAT	P	U	
95/01	WSCC	CNV	CA	PG&E	UNID. PG&E Small Hydro 95	2	HY	WAT	P	U	
95/01	WSCC	CNV	CA	RDNG	LAKE REDDING	8	HY	WAT	L	U	
95/01	WSCC	NWP	ID	IPC	TWIN FALLS EXPANSION	6	HY	WAT	L	U	
95/04	NPCC	ONT	ON	ONHY	SMOKEY FALLS EXTN. 1-2	182	HY	WAT	P	U	
95/06	WSCC	NWP	WA	TCL	HOWARD HANSON 1-3	0	HY	WAT	P	U	
95/09	WSCC	NWP	WA	TCL	ELKHORN 1-2	0	HY	WAT	P	U	
95/11	NPCC	ONT	ON	ONHY	HARMON EXTN. 1	74	HY	WAT	P	U	

[a,b,c,d] See page 148, footnotes a, b, c, and d, respectively.

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Hydro (Conventional) Generating Unit Additions[a]
(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
95/12	NPCC	QUE	QB	HYQB	Brisay 1-2	460	HY	WAT	L	U	
95/12	NPCC	QUE	QB	HYQB	La Grande 1 1-12	1368	HY	WAT	T	U	
95/12	NPCC	QUE	QB	HYQB	Laforge 1 1-6	829	HY	WAT	T	U	
SUBTOTAL						2975					
96/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 96	37	HY	WAT	L	U	
96/01	WSCC	CNV	CA	RDNG	LAKE RED BLUFF	4	HY	WAT	L	U	
96/03	WSCC	NWP	ID	TCL	A.J. WILEY 1-3	0	HY	WAT	P	U	
96/05	NPCC	ONT	ON	ONHY	LITTLE LONG EXTN. 1	51	HY	WAT	P	U	
96/06	NPCC	NY	NY	POAS	NIAGARA FALLS	330	HY	WAT	L	U	
96/11	NPCC	NE	VT	VTGP	NEWPORT 2	6.8	HY	WAT	P	U	
96/11	NPCC	ONT	ON	ONHY	LITTLE JACKFISH 1-2	129	HY	WAT	P	U	
96/12	NPCC	QUE	QB	HYQB	Laforge 2 1-2	270	HY	WAT	T	U	
SUBTOTAL						828					
97/01	WSCC	CNV	CA	PG&E	UNID. ID & WA HYDRO 97	25	HY	WAT	P	U	
97/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 97	109	HY	WAT	P	U	
97/01	WSCC	CNV	CA	PG&E	UNID. PG&E Small Hydro 97	2	HY	WAT	P	U	
97/09	WSCC	NWP	WA	PSPL	TYE RIVER	10	HY	WAT	L	U	
97/12	NPCC	QUE	QB	HYQB	Manic 3 A 1-2	570	HY	WAT	P	U	
SUBTOTAL						716					
98/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO 98	17	HY	WAT	P	U	
98/01	WSCC	CNV	CA	PG&E	UNID. PG&E Small Hydro 98	2	HY	WAT	P	U	
98/08	WSCC		BC	BCHA	KEENLEYSIDE 1	80	HY	WAT	P	U	
98/11	NPCC	ONT	ON	ONHY	NIAGARA RIVER 1-2	550	HY	WAT	P	U	
98/12	NPCC	QUE	QB	HYQB	Grande Baleine GB-1	1187	HY	WAT	P	U	
98/12	NPCC	QUE	QB	HYQB	Ste-Marguerite	822	HY	WAT	P	U	
98/12	WSCC		BC	BCHA	KEENLEYSIDE 2	80	HY	WAT	P	U	
SUBTOTAL						2738					
TOTAL						12410					

[a,b,c,d] See page 148, footnotes a, b, c, and d, respectively.

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Pumped Storage Generating Unit Additions[a]

(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
90/12	SERC	SOU	GA	SEPA	RUSSELL HYDRO UNIT 5	75	PS	WAT	U	U	
SUBTOTAL						75					
91/03	SERC	VAC	GA	SEPA	Russell Hydro 6	75	PS	WAT	U	U	
91/06	SERC	SOU	GA	SEPA	Russell Hydro Unit 7	75	PS	WAT	U	U	
91/09	SERC	VAC	GA	SEPA	Russell Hydro 8	75	PS	WAT	U	U	
SUBTOTAL						225					
92/04	SERC	VAC	SC	DUPC	Bad Creek 1	250	PS	WAT	U	U	
92/04	SERC	VAC	SC	DUPC	Bad Creek 2	250	PS	WAT	U	U	
SUBTOTAL						500					
93/01	SERC	VAC	SC	DUPC	Bad Creek 3	250	PS	WAT	U	U	
93/01	SERC	VAC	SC	DUPC	Bad Creek 4	250	PS	WAT	U	U	
SUBTOTAL						500					
94/04	WSCC	RMP	CO	CCS	Stanley Canyon Pump Hydro	64	PS	WAT	T	U	
SUBTOTAL						64					
95/01	WSCC	AZN	AZ	USLC	WADDELL (4)	45	PS	WAT	U	U	
SUBTOTAL						45					
96/03	SERC	SOU	GA	GEPC	Rocky Mountain Units 1 - 3	848	PS	WAT	U	U	
SUBTOTAL						848					
98/01	WSCC	CNV	CA	RDNG	SPRING CREEK PS	100	PS	WAT	L	U	
SUBTOTAL						100					
TOTAL						2357					

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[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

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Oil-Fired Generating Unit Additions[a]

(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/05	MAAC		MD	DPLC	EASTON 23-24	12.6	IC	FO2	V	U	
89/05	MAAC		NJ	GPUS	FORKED ROVER CTS 1,2	70	GT	FO2	U	U	
89/06	SPP	N	MO	STJO	LAKE ROAD 6	20	JE	FO2	P	U	
89/07	NPCC	NB	NB	NBPO	GRAND MANAN #10	25	GT	FO2	V	U	
89/08	NPCC	NY	NY	LOIL	BROOKHAVEN CT	240	GT	FO2	V	U	
SUBTOTAL						368					
90/01	MAPP		IA	ISU	GRINNELL GT #1	23	GT	FO2	U	U	
90/01	MAPP		IA	ISU	GRINNELL GT #2	23	GT	FO2	U	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 1	2	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 3	1	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 4	1	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 5	2	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	NEW ROADS DIESEL 6	2	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	RAYNE DIESEL 8	3	IC	OIL	P	U	
90/01	SPP	SE	LA	LEPA	RAYNE DIESEL 9	3	IC	OIL	P	U	
90/02	SERC	FL	FL	KEYW	Stock Island Diesel #1	9.8	IC	FO2	U	U	
90/02	SERC	FL	FL	KEYW	Stock Island Diesel #2	9.8	IC	FO2	U	U	
90/03	WSCC		MX	CFE	ROSARITO II #1	150	ST	FO6	U	U	
90/05	MAAC		UN	PPCO	COMBUSTION TURBINE	105	GT	FO2	L	U	
90/05	MAPP		IA	IPL	PLEASANT HILL #1	35	GT	FO2	L	U	
90/05	MAPP		IA	IPL	PLEASANT HILL #2	35	GT	FO2	L	U	
90/05	SPP	N	MO	STJO	LAKE ROAD 7	15	JE	FO2	P	U	
90/09	WSCC		MX	CFE	ROSARITO II #2	150	ST	FO6	T	U	
SUBTOTAL						570					
91/05	MAAC		UN	PPCO	COMBUSTION TURBINE	105	GT	FO2	L	U	
91/05	MAPP		UN	NWPS	FUTURE CT	22.5	GT	FO2	P	U	
91/05	SPP	N	MO	MIPU	GREENWOOD 1	3	GT	FO2	L	U	
91/05	SPP	N	MO	MIPU	GREENWOOD 2	3	GT	FO2	L	U	
91/05	SPP	N	MO	MIPU	GREENWOOD 3	3	GT	FO2	L	U	
91/05	SPP	N	MO	MIPU	GREENWOOD 4	3	GT	FO2	L	U	
91/06	MAPP		IA	IPW	MASON CITY GT #1	30	GT	FO2	U	U	
91/06	MAPP		IA	IPW	MASON CITY GT #2	30	GT	FO2	U	U	
SUBTOTAL						200					
92/05	MAAC		DE	DPLC	DOVER CT	30	GT	FO2	P	U	
92/05	MAAC		UN	GPUS	COMBUSTION TURBINES	70	GT	FO2	P	U	
92/05	MAPP		IA	IPL	PLEASANT HILL #1	35	GT	FO2	P	U	
92/05	MAPP		IA	IPL	PLEASANT HILL #2	35	GT	FO2	P	U	
92/06	MAIN	WUM	WI	MARF	WILDWOOD 6-8	15	IC	FO2	P	U	
92/12	NPCC	QUE	QB	HYQB	TAG 1	124	GT	FO2	P	U	
SUBTOTAL						309					
93/05	MAPP		UN	NWPS	FUTURE CT 2	22.5	GT	FO2	P	U	
93/12	NPCC	QUE	QB	HYQB	TAG 2-3-4	372	GT	FO2	P	U	
SUBTOTAL						395					

[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

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Oil–Fired Generating Unit Additions[a]

(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
94/01	SERC	FL	FL	TAEC	CT2	75	GT	FO2	P	U	
94/03	WSCC		MX	CFE	ENSENADA 1	150	ST	FO6	P	U	
94/04	ECAR		UN	KU	Unknown	130	GT	FO2	P	U	
94/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	GT	FO2	P	U	
94/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	FO2	L	U	
94/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE	70	GT	FO2	P	U	
SUBTOTAL						750					
95/01	MAPP		NE	OPPD	FUTURE GT 1	80	GT	FO2	P	U	
95/01	SERC	FL	FL	TAEC	CT3	75	GT	FO2	P	U	
95/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	FO2	L	U	
95/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE	70	GT	FO2	P	U	
SUBTOTAL						350					
96/01	MAPP		NE	OPPD	FUTURE GT 2	80	GT	FO2	P	U	
96/01	SERC	FL	FL	TAEC	CT4	75	GT	FO2	P	U	
96/03	WSCC		MX	CFE	ENSENADA 2	150	ST	FO6	P	U	
96/04	ECAR		UN	KU	Unknown	130	GT	FO2	P	U	
96/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	GT	FO2	P	U	
96/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	FO2	L	U	
96/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE	70	GT	FO2	P	U	
96/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE	70	GT	FO2	P	U	
SUBTOTAL						900					
97/01	MAPP		NE	OPPD	FUTURE GT 3	80	GT	FO2	P	U	
97/01	SERC	FL	FL	TAEC	CT5	75	GT	FO2	P	U	
97/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	GT	FO2	P	U	
SUBTOTAL						355					
98/04	ECAR		UN	KU	Unknown	130	GT	FO2	P	U	
98/04	SERC	FL	FL	JACO	Future 1	140	GT	FO2	V	U	
98/05	MAAC		UN	GPUS	COMBUSTION TURBINES	300	GT	FO2	P	U	
98/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	FO2	L	U	
98/12	MAPP		UN	OTP	FUTURE GT 1	22	GT	FO2	P	U	
SUBTOTAL						717					
TOTAL						4912					

[a,b,c,d] See page 152, footnotes a, b, c, and d, respectively.

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Gas-Fired Generating Unit Additions[a]
(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/01	SERC	FL	FL	FOPC	H. D. King 9	22.5	GT	NG	V	U	
89/05	MAAC		DE	DPLC	HAY ROAD 2	104	GT	NG	V	U	
89/06	SERC	FL	FL	ORLA	Indian River CT A	38	GT	NG	U	U	J
89/06	SPP	N	MO	SPRM	JRPS GT 1	71	GT	NG	U	U	
89/07	SERC	FL	FL	ORLA	Indian River CT B	38	GT	NG	U	U	J
89/08	MAAC		DE	DPLC	HAY ROAD 1	104	GT	NG	V	U	
SUBTOTAL						378					
90/01	SPP	SE	LA	LEPA	D.G. HUNTER 1	16	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	D.G. HUNTER 2	16	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	D.G. HUNTER 3	47	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	D.G. HUNTER 4	78	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	MORGAN CITY STEAM 1	10	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	MORGAN CITY STEAM 2	10	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	MORGAN CITY STEAM 3	18	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	MORGAN CITY STEAM 4	34	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	PLAQUEMINE STEAM 1	20	ST	GAS	P	U	
90/01	SPP	SE	LA	LEPA	PLAQUEMINE STEAM 2	23	ST	GAS	P	U	
90/01	WSCC		BC	WKPL	GAS TURBINES 1-2	116	GT	NG	L	U	
90/04	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	U	U	
90/04	ERCOT		TX	TUEC	COMBUSTION TURBINES	260	GT	NG	U	U	
90/05	MAAC		NJ	AECO	AE Combustion Turbine	75	GT	NG	P	U	
90/05	SPP	SE	TX	LUPL	TECH 1	20	GT	NG	U	U	
90/06	SERC	VAC	VA	VIEP	Chesterfield 7	127	CT	NG	U	U	
90/12	NPCC	NE	MA	OSPC	OCEAN STATE POWER 1	225	CC	NG	T	U	
SUBTOTAL						1225					
91/01	SERC	FL	FL	HSTM	Ivey 22	25	IC	NG	P	U	
91/04	ECAR		UN	SIGE	Undesignated	80	GT	NG	P	U	
91/05	MAAC		UN	PPCO	SMECO CT	60	GT	NG	L	U	
91/05	SERC	VAC	SC	SOCG	Hagood GT 1	96	GT	NG	T	U	
91/05	SPP	SE	LA	LAFA	PLAQUEMINE 1	20	ST	NG	P	U	
91/05	SPP	SE	LA	LAFA	PLAQUEMINE 2	23	ST	NG	P	U	
91/06	SERC	SOU	AL	ALEC	CAES UNIT 1[e]	110	ZZ	NG	U	U	
91/10	MAPP		SA	SPC	FUTURE PEAKING 1	46	GT	NG	P	U	
91/11	NPCC	NE	MA	OSPC	OCEAN STATE POWER 1	225	CC	NG	L	U	
SUBTOTAL						685					
92/05	SPP	N	MO	MIPU	RALPH GREEN 1	20	CW	NG	L	U	
92/06	MAIN	SCI	IL	CWLP	LAKESIDE GT1	36	CT	NG	P	U	
92/06	SERC	VAC	VA	VIEP	Chesterfield 8	127	CT	NG	P	U	
SUBTOTAL						183					
93/01	ERCOT		TX	BEPC	UNDESIGNATED	208	CC	NG	P	U	
93/01	SERC	FL	FL	SECI	Hardee Power Station Two	220	CC	NG	L	U	
93/01	SERC	SOU	MS	SOMI	MOSELLE	80	CT	NG	P	U	
93/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
93/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	CT	NG	P	U	

[a] Electric utility units only. Excludes non-utility generators (NUG).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] Compressed air energy storage.

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Gas-Fired Generating Unit Additions[a]
(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
93/05	SERC	VAC	SC	SOCG	Undesignated 2	96	GT	NG	P	U	
93/06	MAIN	SCI	IL	CWLP	LAKESIDE 5	20	CA	NG	P	U	
93/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
93/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
93/06	SPP	N	MO	SPRM	JRPS GT 2	71	GT	NG	P	U	
93/06	SPP	WC	OK	OMPA	COMB. TURBINE 1	35	CT	NG	P	U	
93/06	WSCC	CNV	NV	NEVP	CLARK 5	70	CT	NG	P	U	
93/06	WSCC	CNV	NV	NEVP	CLARK 6	70	CT	NG	P	U	
93/06	WSCC	CNV	NV	NEVP	CLARK 9	90	CW	NG	L	U	
93/10	MAPP		SA	SPC	FUTURE PEAKING 2	46	GT	NG	P	U	
SUBTOTAL						1436					
94/01	ERCOT		TX	BEPC	UNDESIGNATED	68	GT	NG	P	U	
94/01	SERC	FL	FL	FLPL	Unsited Combined Cycle 1	385	CC	NG	P	U	
94/01	SERC	FL	FL	ORLA	Indian River CT C	38	GT	NG	P	U	
94/01	SERC	FL	FL	ORLA	Indian River CT D	38	GT	NG	P	U	
94/04	ECAR		OH	CG&E	Woodsdale 1	60	GT	NG	L	U	
94/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
94/05	SERC	SOU	AL	ALAP	PEAKING	126	GT	NG	P	U	
94/05	SERC	SOU	FL	GUPC	CARYVILLE - PEAKING	126	GT	NG	P	U	
94/05	SERC	SOU	GA	GEPC	PEAKING	725	GT	NG	P	U	
94/05	SERC	SOU	GA	SAEP	PEAKING	158	GT	NG	P	U	
94/05	SERC	VAC	SC	SOCG	Undesignated 3	96	GT	NG	P	U	
94/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
94/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
94/06	SERC	SOU	AL	ALEC	McWILLIAMS UNIT 4	100	CT	NG	P	U	
94/06	WSCC	CNV	NV	NEVP	CLARK 10	90	CW	NG	L	U	
94/06	WSCC	CNV	NV	NEVP	CLARK 7	70	CT	NG	L	U	
94/06	WSCC	CNV	NV	NEVP	CLARK 8	70	CT	NG	L	U	
94/11	SERC	FL	FL	FLPC	Combustion Turbine 1-2	240	GT	NG	P	U	
SUBTOTAL						2620					
95/01	ERCOT		TX	BEPC	UNDESIGNATED	208	CC	NG	P	U	
95/01	SERC	FL	FL	FLPL	Unsited Combined Cycle 2	385	CC	NG	P	U	
95/01	SERC	FL	FL	LALW	Unknown 1	50	GT	NG	P	U	
95/01	WSCC	CNV	CA	LDWP	HARBOR CC	160	CT	NG	P	U	
95/04	ECAR		OH	CG&E	Woodsdale 2	60	GT	NG	L	U	
95/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
95/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	CT	NG	P	U	
95/05	NPCC	NE	MA	NEES	RP MANCH 9,10,11	280	CC	NG	P	U	
95/05	SERC	SOU	AL	ALAP	PEAKING	378	GT	NG	P	U	
95/05	SERC	SOU	GA	GEPC	PEAKING	504	GT	NG	P	U	
95/05	SERC	SOU	MS	MIPR	PEAKING	126	GT	NG	P	U	
95/05	SPP	N	MO	MIPU	RALPH GREEN 4	62	GT	NG	L	U	
95/05	SPP	N	MO	STJO	LAKE ROAD 8	65	GT	NG	P	U	
95/06	MAIN	WUM	WI	MGE	COMBUSTION TURBINE	72	UN	NG	P	U	
95/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
95/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
95/06	NPCC	NE	MA	COMW	COMBINED CYCLE [e]	96.7	CC	NG	P	U	

[a,b,c,d] See page 154, footnotes a, b, c, and d, respectively.

[e] Hypothetical unit to fill anticipated resource requirement. Resources may actually come from some other resources than those shown.

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Gas-Fired Generating Unit Additions[a]
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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
95/06	SPP	N	MO	EMDE	ENERGY CENTER 3	75	CA	NG	P	U	
95/10	MAPP		SA	SPC	FUTURE PEAKING 3	46	GT	NG	P	U	
95/10	WSCC		AB	TAUC	GAS TURBINE 1	81	GT	NG	P	U	
95/11	SERC	FL	FL	FLPC	Combustion Turbine 3	120	GT	NG	P	U	
SUBTOTAL						3199					
96/01	ERCOT		TX	BEPC	UNDESIGNATED	68	GT	NG	P	U	
96/01	WSCC	AZN	TX	EPE	GENERIC STATION	75	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 1	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 2	105	GT	NG	P	U	
96/04	ECAR		OH	CG&E	Woodsdale 3	60	GT	NG	L	U	
96/04	ECAR		OH	CG&E	Woodsdale 4	60	GT	NG	L	U	
96/04	ECAR		OH	CG&E	Woodsdale 5	60	GT	NG	L	U	
96/04	ECAR		OH	CG&E	Woodsdale 6	60	GT	NG	L	U	
96/04	ECAR		OH	CG&E	Woodsdale 7	60	GT	NG	L	U	
96/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
96/04	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	CT	NG	P	U	
96/05	MAAC		UN	GPUS	COMBINED CYCLE	100	CW	NG	P	U	
96/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	CT	NG	P	U	
96/05	SERC	SOU	GA	GEPC	PEAKING	126	GT	NG	P	U	
96/05	SERC	VAC	SC	SOCG	Undesignated 4	74	CT	NG	P	U	
96/05	SPP	N	MO	MIPU	RALPH GREEN 2	20	CW	NG	L	U	
96/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
96/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
96/06	SERC	SOU	AL	ALEC	CAES UNIT 2[e]	110	ZZ	NG	P	U	
96/06	SPP	N	MO	EMDE	UNKNOWN 96	32	GT	NG	P	U	
96/06	SPP	N	MO	KACP	HAWTHORN 4	113	ST	NG	P	U	
96/06	WSCC	CNV	CA	SDGE	COMBINED CYCLE 1	160	CT	NG	P	U	
96/06	WSCC	CNV	CA	SDGE	COMBINED CYCLE 2	160	CT	NG	P	U	
96/12	ERCOT		TX	WETU	RIO PECOS #5	42	CW	NG	P	U	
96/12	ERCOT		TX	WETU	RIO PECOS #5	88	CT	NG	P	U	
SUBTOTAL						2498					
97/01	ERCOT		TX	BEPC	UNDESIGNATED	68	GT	NG	P	U	
97/01	SERC	SOU	MS	SOMI	MOSELLE	80	CT	NG	P	U	
97/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 3	160	CT	NG	P	U	
97/03	SPP	N	MO	KACP	HAWTHORN 3	108	ST	NG	P	U	
97/04	ECAR		OH	CG&E	Woodsdale 8	60	GT	NG	L	U	
97/04	ECAR		OH	CG&E	Woodsdale 9	60	GT	NG	L	U	
97/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
97/04	WSCC	RMP	CO	CCS	NIXON CT 1	54	GT	NG	P	U	
97/05	MAAC		UN	GPUS	COMBINED CYCLE	100	CW	NG	P	U	
97/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	CT	NG	P	U	
97/05	SERC	SOU	AL	ALAP	PEAKING	252	GT	NG	P	U	
97/05	SERC	SOU	FL	GUPC	CARYVILLE - PEAKING	126	GT	NG	P	U	
97/05	SERC	SOU	GA	GEPC	PEAKING	473	GT	NG	P	U	
97/05	SERC	SOU	MS	MIPR	PEAKING	32	GT	NG	P	U	
97/05	SERC	VAC	SC	SOCG	Undesignated 5	74	CT	NG	P	U	
97/06	MAAC		MD	BCCO	BC CT 1	125	CT	NG	P	U	

[a,b,c,d,e] See page 154, footnotes a, b, c, d, and e, respectively.

Gas-Fired Generating Unit Additions[a]

(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
97/07	ECAR		KY	LG&E	Cane Run 12	75	GT	NG	P	U	
97/10	WSCC		AB	TAUC	GAS TURBINE 2	81	GT	NG	P	U	
97/12	ERCOT		TX	WETU	RIO PECOS #6	33	CT	NG	P	U	
SUBTOTAL						2241					
98/01	ERCOT		TX	BEPC	UNDESIGNATED	68	GT	NG	P	U	
98/01	MAPP		MN	SMMP	FUTURE COMB CYCLE 1	80	CT	NG	P	U	
98/01	SERC	FL	FL	LALW	Unknown 2	50	GT	NG	P	U	
98/03	SPP	N	MO	KACP	COMB. TURBINE 3	105	GT	NG	P	U	
98/04	ECAR		OH	CG&E	Woodsdale 10	60	GT	NG	L	U	
98/04	ECAR		OH	CG&E	Woodsdale 11	60	GT	NG	L	U	
98/04	ECAR		OH	CG&E	Woodsdale 12	60	GT	NG	L	U	
98/04	ECAR		UN	CG&E	New GT 1	60	GT	NG	P	U	
98/05	MAAC		UN	GPUS	COMBINED CYCLE	100	CW	NG	P	U	
98/05	SERC	SOU	AL	ALAP	PEAKING	252	GT	NG	P	U	
98/05	SERC	SOU	GA	GEPC	PEAKING	756	GT	NG	P	U	
98/05	SERC	VAC	SC	SOCG	Undesignated 6	74	CT	NG	P	U	
98/05	SPP	WC	OK	OKGE	UNKNOWN 98	240	GT	NG	P	U	
98/06	MAAC		MD	BCCO	BC CT 2	125	CT	NG	P	U	
98/06	MAIN	WUM	WI	MGE	COMBUSTION TURBINE	36	UN	NG	P	U	
98/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
98/06	SERC	SOU	AL	ALEC	COMBUSTION TURBINE 1	75	GT	NG	P	U	
98/06	SERC	SOU	AL	ALEC	COMBUSTION TURBINE 2	75	GT	NG	P	U	
98/06	SPP	N	MO	EMDE	UNKNOWN 98	32	GT	NG	P	U	
SUBTOTAL						2383					
TOTAL						16847					

[a,b,c,d] See page 154, footnotes a, b, c, and d, respectively.

APPENDIX K

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Other (Utility)[a] Generating Unit Additions
(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/01	WSCC	CNV	CA	PG&E	PVUSA 1	1	SO	SUN	U	U	
89/02	SERC	FL	FL	FOPC	H. D. King 5	7.5	CW	WH	V	U	
89/07	WSCC	NWP	WA	TCL	STEAM PLANT NO. 2	38	CG	REF	V	U	
89/11	NPCC	NE	VT	VTGP	PROCTOR	0.6	IC	UNK	P	U	
SUBTOTAL						47					
90/01	WSCC	CNV	CA	PG&E	PVUSA 2	1	SO	SUN	P	U	
90/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
90/01	WSCC	NWP	UT	UPLC	COVE FORT 1	6	GE	GST	P	U	
90/06	SERC	VAC	VA	VIEP	Chesterfield 7	58	CW	WH	U	U	
SUBTOTAL						115					
91/01	SERC	VAC	NC	CAPO	Undesignated	15	UN	UNK	P	U	
91/01	WSCC	CNV	CA	PG&E	PVUSA 3	1	SO	SUN	P	U	
91/06	SPP	SE	TX	LUPL	WASTE RECOVERY 1	10	ST	REF	T	U	
91/07	WSCC	CNV	CA	GLEN	SCHOLL CANYON 2	12	IC	REF	U	U	
91/11	NPCC	NE	VT	VTGP	FLORENCE	9	GT	UNK	P	U	
SUBTOTAL						47					
92/02	WSCC		MX	CFE	CERRO PRIETO IV UNIT 1	52	GE	GST	L	U	
92/06	SERC	VAC	VA	VIEP	Chesterfield 8	58	CW	WH	P	U	
SUBTOTAL						110					
93/01	MAAC		NJ	AECO	RESOURCE RECOVERY 1	24	ZZ	REF	P	U	
93/01	SERC	FL	FL	FLPC	Firm Purchase 1	200	UN	UNK	P	U	
93/01	WSCC	AZN	AZ	APS	SOLAR 1	2	SO	SUN	U	U	
93/02	WSCC		MX	CFE	CERRO PRIETO IV UNIT 2	52	GE	GST	T	U	
93/03	SPP	N	MO	KACP	WASTE-TO-ENERGY	20	ST	REF	P	U	
93/05	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	12.6	UN	UNK	P	U	
93/05	MAAC		UN	DPLC	HAY ROAD 3	100	CW	WH	P	U	
93/05	MAAC		UN	PPCO	MUNI. SOLID WASTE	40	ST	REF	P	U	
SUBTOTAL						451					
94/01	MAAC		NJ	AECO	RESOURCE RECOVERY 2	18	ZZ	REF	P	U	
94/01	SERC	SOU	MS	SOMI	MOSELLE	40	CW	WH	P	U	
94/01	SERC	VAC	NC	CAPO	Undesignated	250	UN	UNK	P	U	
94/04	ERCOT		TX	TUEC	UNSPECIFIED[e]	100	UN	UNK	P	U	
94/05	ERCOT		TX	CPSA	MSW-LCP	37	ST	REF	P	U	
SUBTOTAL						445					
95/01	ECAR		UN	EKPC	Unknown[f]	60	UN	UNK	P	U	
95/01	SERC	VAC	NC	CAPO	Undesignated	250	UN	UNK	P	U	
95/01	WSCC	CNV	CA	NCPA	GEO PLT. 3 UNIT 5	53	GE	GST	P	U	J
95/01	WSCC	CNV	CA	NCPA	UNIDENTIFIED PEAKING	25	ZZ	UNK	P	U	
95/05	ECAR		UN	DECO	Unknown	100	UN	UNK	P	U	
95/05	MAPP		UN	NSP	FUTURE PEAKER 1	150	UN	UNK	P	U	
SUBTOTAL						638					

[a] Includes utility-owned capacity other than nuclear, coal-, oil-, and gas-fired, conventional hydro, and pumped storage units. Excludes non-utility generators (NUGs).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] Unspecified resources, may be one of the following: cogeneration, small producers, purchased power, deferred retirements, simple cycle or combined cycle combustion, additional load management or conservation, or baseload units.

[f] Best combination of combustion turbines, load management, dispersed generation and/or firm purchases.

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Other (Utility)[a] Generating Unit Additions
(January 1, 1989 - December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
96/01	ECAR		UN	EKPC	Unknown[e]	60	UN	UNK	P	U	
96/01	SERC	VAC	NC	CAPO	Undesignated	250	UN	UNK	P	U	
96/01	WSCC	CNV	CA	LDWP	GENERIC 1996	200	ZZ	UNK	P	U	
96/04	ERCOT		TX	TUEC	UNSPECIFIED[f]	50	UN	UNK	P	U	
96/05	ECAR		UN	DECO	Unknown	200	UN	UNK	P	U	
96/05	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	15	UN	UNK	P	U	
96/05	SERC	VAC	SC	SOCG	Undesignated 4	34	CW	WH	P	U	
96/06	WSCC	CNV	CA	SDGE	COMBINED CYCLE 1	40	CW	WH	P	U	
96/06	WSCC	CNV	CA	SDGE	COMBINED CYCLE 2	40	CW	WH	P	U	
SUBTOTAL						889					
97/01	ECAR		UN	EKPC	Unknown[e]	60	UN	UNK	P	U	
97/01	SERC	VAC	NC	CAPO	Undesignated	250	UN	UNK	P	U	
97/01	WSCC	AZN	AZ	APS	SOLAR 2	8	SO	SUN	P	U	
97/01	WSCC	CNV	CA	LDWP	GENERIC 1997	100	ZZ	UNK	P	U	
97/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 3	40	CW	WH	P	U	
97/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
97/05	ECAR		UN	DECO	Unknown	200	UN	UNK	P	U	
97/05	MAAC		UN	DPLC	CFB 1[g]	150	ZZ	UNK	P	U	
97/05	MAPP		UN	NSP	FUTURE PEAKER 2	150	UN	UNK	P	U	
97/05	SERC	VAC	SC	SOCG	Undesignated 5	34	CW	WH	P	U	
SUBTOTAL						1042					
98/01	ECAR		UN	EKPC	Unknown[e]	60	UN	UNK	P	U	
98/01	SERC	SOU	MS	SOMI	MOSELLE	40	CW	WH	P	U	
98/01	SERC	VAC	NC	CAPO	Undesignated	500	UN	UNK	P	U	
98/01	WSCC	CNV	CA	LDWP	GENERIC 1998	200	ZZ	UNK	P	U	
98/01	WSCC	CNV	CA	NCPA	UNIDENTIFIED PEAKING	25	ZZ	UNK	P	U	
98/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
98/04	ERCOT		TX	TUEC	UNSPECIFIED[f]	350	UN	UNK	P	U	
98/05	ECAR		UN	DECO	Unknown	100	UN	UNK	P	U	
98/05	MAPP		UN	NSP	FUTURE BASE 1	400	UN	UNK	P	U	
98/05	SERC	VAC	SC	SOCG	Undesignated 6	34	CW	WH	P	U	
SUBTOTAL						1759					
TOTAL						5543					

[a,b,c,d] See page 158, footnotes a, b, c, and d, respectively.

[e] See page 158, footnote f.

[f] See page 158, footnote e.

[g] Circulating fluidized bed unit.

APPENDIX L

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Non-Utility Generator (NUG) Additions[a]

(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/01	ECAR		UN	DECO	One Facility	7	UN	UNK	P	ZZ	
89/01	MAAC		NJ	GPUS	WARREN CO. RR - NUG[e]	11	ST	REF	P	ZZ	
89/01	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	27	CG	UNK	P	CG	
89/01	WSCC	CNV	CA	PG&E	QF COGENERATION 89	521	CG	UNK	P	CG	
89/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 89	51	GE	GST	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF HYDRO 89	44	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF SOLID WASTE/BIOMASS 89	104	ZZ	UNK	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF WIND 89	14	WM	WND	P	ZZ	
89/01	WSCC	NWP	ID	UPLC	ENERGENICS	2	HY	WAT	P	ZZ	
89/01	WSCC	NWP	UT	UPLC	LEHI COGEN	17	CG	NG	P	CG	
89/02	ECAR		UN	CP	One facility	17	UN	WD	P	ZZ	
89/02	MAAC		PA	GPUS	CATERPILLAR TRACTOR - NUG[e]	45	CW	NG	P	ZZ	
89/02	MAAC		PA	GPUS	CONEMAUGH DAM - NUG[e]	15	HY	WAT	P	ZZ	
89/02	NPCC	NE	CT	UNK	Derby Dan	6.16	HY	WAT	V	ZZ	
89/02	NPCC	NE	CT	UNK	WALLINGFORD REFUSE (CRRA)	9.2	ST	REF	V	ZZ	
89/02	NPCC	NE	MA	NEES	CLARK UNIVERSITY	0.18	IC	OIL	V	ZZ	
89/02	NPCC	NE	ME	CMP	United American Hydro(Kennebec)	17	HY	WAT	V	ZZ	
89/02	NPCC	NE	NH	REES	Mascoma Hydro	1.5	HY	WAT	V	ZZ	
89/02	NPCC	NE	VT	VTGP	Moratown 8	1.25	HY	WAT	V	ZZ	
89/02	WSCC	RMP	CO	PSC	VALLECITO HYDRO	5	HY	WAT	V	ZZ	
89/02	WSCC	RMP	WY	PSC	SIMPSON RIDGE	2	WM	WND	V	ZZ	
89/03	MAAC		PA	GPUS	GLATFELTER 2 - NUG[e]	26	ST	ZZ	P	ZZ	
89/03	NPCC	NE	MA	BECO	Southboro Hydro	0.75	HY	WAT	V	ZZ	
89/03	NPCC	NE	MA	UNITIL	BAY STATE GAS	0.75	ZZ	GAS	V	ZZ	
89/03	NPCC	NE	ME	CMP	Worunbo - Miller Hydro	13.1	HY	WAT	V	ZZ	
89/03	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[f]	6	UN	REF	V	ZZ	
89/04	NPCC	NE	VT	VTGP	Springfield	0.4	HY	WAT	V	ZZ	
89/04	WSCC	NWP	MT	MPC	BROADWATER DAM	10	HY	WAT	P	ZZ	
89/05	MAAC		NJ	GPUS	MARCAL PAPER - NUG[e]	45	GT	NG	P	ZZ	
89/05	MAAC		NJ	GPUS	RIEGEL PAPER - NUG[e]	33	GT	NG	P	ZZ	
89/05	MAAC		NJ	GPUS	SCHERING PLOUGH,KN - NUG[e]	17	GT	NG	P	ZZ	
89/05	MAAC		PA	GPUS	SPRINGS DAM 7 - NUG[e]	10	HY	WAT	P	ZZ	
89/05	NPCC	NE	CT	UNK	G. FOX (IEC)	4.1	GT	NG	V	ZZ	
89/05	NPCC	NE	MA	NEES	HAVERHILL POWER INC (OGDEN)	40	ST	REF	V	ZZ	
89/05	NPCC	NE	ME	CMP	SCOTT-WINSLOW	5.8	ST	WOD	V	ZZ	
89/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[f]	12	UN	UNK	L	ZZ	
89/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[f]	29.4	UN	REF	V	ZZ	
89/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[f]	51.1	UN	UNK	V	ZZ	
89/05	NPCC	NY	NY	ORRU	NON-UTILITY GENERATORS	1	HY	WAT	L	ZZ	
89/05	NPCC	NY	NY	ORRU	NON-UTILITY GENERATORS[f]	4	UN	REF	L	ZZ	
89/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	5	UN	UNK	P	ZZ	
89/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	19	UN	UNK	P	ZZ	
89/05	SPP	WC	OK	OKGE	COGENERATOR - SCI	100	CT	NG	V	CG	
89/05	WSCC	NWP	NV	SPP	TCID	4	HY	WAT	V	ZZ	
89/05	WSCC	NWP	WA	PSPL	TWIN FALLS	20	HY	WAT	P	ZZ	
89/06	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	151	CG	UNK	U	CG	
89/06	MAAC		NJ	GPUS	L&D LANDFILL - NUG[e]	4	IC	GAS	P	ZZ	
89/06	NPCC	NE	ME	BECO	Downeast/Peat Products America	22.8	ST	PEA	V	ZZ	

[a] Non-utility generators (NUGs) include the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of peak demand.

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] Qualifying facilities under PURPA which may be waste burning (trash, waste coal), small hydro, third-party financed or self-generation, cogeneration, wind, solar, etc.

[f] Non-utility generators at various locations, providing power burning various types of fuel.

Non–Utility Generator (NUG) Additions[a]
(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/06	SERC	FL	FL	FLPL	COMMERCIAL COGEN 01	0	CG	NG	V	CG	
89/06	SERC	FL	FL	FLPL	COMMERCIAL COGEN 02	0	CG	NG	V	CG	
89/06	WSCC	NWP	WA	GCPD	P.E.C. HEADWORKS	7	HY	WAT	V	ZZ	
89/07	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	255	CG	UNK	V	CG	
89/07	NPCC	NE	CT	BECO	CAPITOL DISTRICT CRT	11	CC	NG	V	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	1	IC	UNK	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	67	IC	UNK	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	100	CG	NG	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	387	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	8	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	129	GE	GST	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	2	HY	WAT	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	30	SO	SUN	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	21	WM	WND	P	ZZ	
89/07	WSCC	NWP	OR	PPL	CENTRAL OR POWER PROJ.	2	HY	WAT	P	ZZ	
89/08	NPCC	NE	MA	UNITIL	INDECK	20.8	ST	COL	V	ZZ	
89/08	WSCC	NWP	CA	SPP	SPI	10	ZZ	WD	V	ZZ	
89/09	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-450[e]	CG	UNK	P	CG	
89/09	NPCC	NE	NH	PSNH	CONCORD REGIONAL WASTE	12	ST	REF	V	ZZ	
89/09	NPCC	NY	NY	POAS	NON-UTILITY GENERATORS[f]	2.5	UN	UNK	V	ZZ	
89/10	ECAR		UN	CP	One facility	20	UN	REF	P	ZZ	
89/10	MAAC		NJ	GPUS	HAMM'S LANDFILL - NUG[g]	1	IC	GAS	P	ZZ	
89/10	MAAC		NJ	PSCO	ESSEX COUNTY RRF - NUG	67	UN	REF	P	ZZ	
89/10	NPCC	NE	CT	UNK	AES THAMES	180	ST	COL	V	ZZ	
89/10	NPCC	NE	ME	CMP	Carrabassett Power, Ars Group	36.8	ST	WOD	V	ZZ	
89/10	WSCC	NWP	ID	UPLC	MARSH VALLEY	2	HY	WAT	P	ZZ	
89/10	WSCC	RMP	CO	PSC	PLATORO PROJECT (1)	0	HY	WAT	U	ZZ	
89/11	MAAC		PA	GPUS	MODERN LANDFILL - NUG[g]	3	IC	GAS	P	ZZ	
89/11	NPCC	NE	VT	VTGP	Comtu Falls 2	0.15	HY	WAT	T	ZZ	
89/11	SERC	FL	FL	FLPL	TROPICANA PRODUCTS 1-2	0	CG	NG	V	CG	
89/12	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	62	CG	UNK	U	CG	
89/12	MAAC		PA	GPUS	YORK COUNTY RR - NUG[g]	30	ST	REF	P	ZZ	
89/12	NPCC	NE	RI	NEES	Northeast Landfill Power	12	IC	GAS	U	ZZ	
89/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	22[h]	ZZ	UNK	V	ZZ	
89/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	44[h]	ZZ	UNK	U	ZZ	
89/12	SERC	FL	FL	FLPL	COMMERCIAL COGEN 03 (1)	0	CG	NG	P	CG	
89/12	WSCC	NWP	ID	IPC	COGEN	20	CG	UNK	P	CG	
89/12	WSCC	NWP	OR	PPL	LITTLE GREYBACK	0	HY	WAT	P	ZZ	
89/12	WSCC	RMP	CO	PSC	LAKEWOOD HYDRO	2	HY	WAT	T	ZZ	
SUBTOTAL						2670					
90/01	ECAR		UN	CG&E	Unidentified Facility	8	UN	UNK	P	ZZ	
90/01	ECAR		UN	DECO	One Facility	65	UN	REF	P	ZZ	
90/01	ECAR		UN	WPSC	Unidentified	5	UN	UNK	P	ZZ	
90/01	MAAC		NJ	GPUS	GLOUCESTER CO. RR - NUG[g]	11	ST	REF	P	ZZ	
90/01	MAAC		NJ	PSCO	SMALL QF'S - NUG	20	UN	MUL	P	ZZ	
90/01	NPCC	NE	CT	UNK	DEXTER CORP. CH	38	CC	NG	U	ZZ	
90/01	NPCC	NE	CT	UNK	FLAGG/PERKIN ELMER (CCF 2)	8.5	CC	NG	T	ZZ	

[a,b,c,d] See page 160, footnotes a, b, c, and d, respectively.

[e] Contract expires.

[f] See page 160, footnote f.

[g] See page 160, footnote e.

[h] Includes industrial non-utility generation, power from municipal waste, and small hydro developments.

Non-Utility Generator (NUG) Additions[a]

(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
90/01	NPCC	NE	ME	CMP	Lewiston Steam & Pwr Phii Inc	3.4	ST	REF	U	ZZ	
90/01	SERC	FL	FL	FLPL	PALM BCH CTY. RES. REC.(2)	55	ZZ	REF	P	ZZ	
90/01	SERC	VAC	NC	CAPO	Falls Dam	3	HY	WAT	P	ZZ	
90/01	SERC	VAC	NC	CAPO	Hope Mills Dam	3	HY	WAT	P	ZZ	
90/01	SERC	VAC	NC	CAPO	Jordan Dam	10	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	LDWP	HYPERION ENERGY SYS	43	CG	ZZ	P	CG	
90/01	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN.	78	CG	UNK	P	CG	
90/01	WSCC	CNV	CA	PG&E	QF COGENERATION 90	553	CG	UNK	P	CG	
90/01	WSCC	CNV	CA	PG&E	QF HYDRO 90	12	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF SOLID WASTE/BIOMASS 90	125	ZZ	UNK	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF WIND 90	15	WM	WND	P	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF BIOGAS (1)	1	IC	ZZ	P	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF BIOMASS	9	ST	REF	P	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF COGENERATION (1)	40	CG	NG	P	CG	
90/01	WSCC	CNV	CA	SDGE	QF COGENERATION (3)	108	CG	NG	P	CG	
90/01	WSCC	NWP	ID	UPLC	ENVIRONMENTAL ENERGY CO.	8	HY	WAT	P	ZZ	
90/01	WSCC	NWP	ID	WWPC	CLEARWATER POWER 1-2	1	HY	WAT	U	ZZ	
90/01	WSCC	NWP	WA	SHPD	SUMMIT COGEN	10	CG	WD	L	CG	
90/02	MAAC		PA	GPUS	CLARION POWER - NUG[e]	26	ST	ZZ	P	ZZ	
90/02	NPCC	NE	MA	CES	PEPPERELL	34.6	CC	NG	U	ZZ	
90/02	WSCC	RMP	CO	PSC	Q-WEST PROJECT	25	CG	NG	L	CG	
90/03	ECAR		MI	CP	MCV	800	CC	NG	P	CG	
90/03	MAAC		NJ	GPUS	NEWARK BOXBOARD - NUG[e]	52	GT	NG	P	ZZ	
90/04	WSCC	RMP	CO	PSC	COLO. POWER PROJECT #1	50	CG	NG	T	CG	
90/05	MAAC		NJ	GPUS	SCHERING PLOUGH,UN - NUG[e]	10	GT	NG	P	ZZ	
90/05	NPCC	NE	ME	CMP	BOISE CASCADE	29	ST	WOD	U	ZZ	
90/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[f]	73	UN	UNK	T	ZZ	
90/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[f]	50.1	UN	UNK	V	ZZ	
90/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[f]	60.2	UN	REF	V	ZZ	
90/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS	9.2	HY	WAT	T	ZZ	
90/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[f]	196	UN	UNK	T	ZZ	
90/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS	33	HY	WAT	T	ZZ	
90/05	NPCC	NY	NY	ORRU	NON-UTILITY GENERATORS[f]	16	UN	UNK	T	ZZ	
90/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	23	UN	UNK	P	ZZ	
90/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	687	UN	UNK	P	ZZ	
90/06	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-50[g]	CG	UNK	P	CG	
90/06	NPCC	NE	VT	UNITIL	ARROWHEAD COGEN.	27	ST	NG	T	CG	
90/06	WSCC	CNV	CA	WAMP	WEBER GT	9	CG	NG	P	CG	
90/07	ECAR		PA	APS	Milesburg	43	ST	COL	P	ZZ	
90/07	ECAR		UN	CP	One facility	50	UN	COL	P	ZZ	
90/07	ERCOT		TX	HL&P	AES DEEPWATER-NUG	136	ST	PC	P	CG	
90/07	NPCC	NE	MA	NEES	ALTRESCO/G.E.	161	CC	NG	U	ZZ	
90/07	WSCC	CNV	CA	SCE	BATTERY STORAGE	10	ZZ	UNK	V	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	71	IC	UNK	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	158	CG	NG	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	49	CG	UNK	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	180	GE	GST	P	ZZ	

[a,b,c,d,e,f] See page 160, footnotes a, b, c, d, e, and f, respectively.

[g] Contract expires.

Non–Utility Generator (NUG) Additions[a]
(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
90/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	101	SO	SUN	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	5	WM	WND	P	ZZ	
90/07	WSCC	RMP	CO	PSC	PUEBLO CHEMICAL	65	CG	NG	T	CG	
90/08	MAAC		NJ	GPUS	DUPONT - NUG[e]	92	GT	NG	P	ZZ	
90/08	WSCC	RMP	CO	PSC	STAGECOACH (1)	1	HY	WAT	U	ZZ	
90/09	MAAC		NJ	PSCO	CAMPBELL SOUP - NUG	112	CW	NG	L	ZZ	
90/09	MAAC		NJ	PSCO	PENNSAUKEN RRF - NUG	7	ST	REF	L	ZZ	
90/09	NPCC	NE	ME	CMP	Andro 1,2,3	1.7	HY	WAT	U	ZZ	
90/09	SERC	FL	FL	FLPC	LAKE COUNTY RES. REC. 1	10	ZZ	REF	P	ZZ	
90/09	WSCC	NWP	ID	WWPC	CANYON CREEK (2)	0	HY	WAT	T	ZZ	
90/09	WSCC	NWP	WA	PSPL	KOMA KULSHAN	12	HY	WAT	P	ZZ	
90/10	MAAC		NJ	PSCO	NEWARK BAY - NUG	92	CW	NG	L	ZZ	
90/10	MAPP		MN	NSP	HENNEPIN CO-NSP #1	38	ST	ZZ	P	ZZ	
90/10	NPCC	NE	CT	UNK	O'BRIEN/HARTFORD	53.5	CC	NG	T	ZZ	
90/10	SERC	FL	FL	FLPC	ST. Joe Forest Prod. 3	15	CG	WD	P	CG	
90/11	MAAC		NJ	GPUS	CONTINENTAL, SAYRE - NUG[e]	250	CW	NG	P	ZZ	
90/11	MAAC		PA	GPUS	GLENDON ENERGY - NUG[e]	11	ST	REF	P	ZZ	
90/11	NPCC	NE	NH	UNITIL	Unicord Proj-Pembroke Wood Br	18.5	ST	WOD	U	ZZ	
90/11	NPCC	NE	VT	VTGP	North Troy Hydro	0.37	HY	WAT	U	ZZ	
90/12	ECAR		MI	CP	MCV	440	CC	NG	P	CG	
90/12	ECAR		WV	APS	Sutton	2	HY	WAT	P	ZZ	
90/12	MAAC		NJ	PSCO	EAGLE POINT - NUG	160	CW	NG	T	ZZ	
90/12	MAAC		PA	GPUS	CAMBRIA COGEN - NUG[e]	80	ST	ZZ	P	ZZ	
90/12	MAAC		PA	GPUS	EBENSBURG POWER - NUG[e]	50	ST	ZZ	P	ZZ	
90/12	MAAC		PA	GPUS	LANCASTER CO. RR - NUG[e]	30	ST	REF	P	ZZ	
90/12	MAAC		PA	GPUS	SCRUBGRASS POWER - NUG[e]	80	ST	ZZ	P	ZZ	
90/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	120[f]	ZZ	UNK	L	ZZ	
SUBTOTAL						6103					
91/01	ECAR		UN	DECO	One Facility	5	UN	UNK	P	ZZ	
91/01	ECAR		UN	PSI	Unidentified	6	UN	UNK	P	ZZ	
91/01	MAAC		NJ	AECO	QUALIFYING FACILITY 1	44	CT	NG	P	ZZ	
91/01	MAAC		NJ	AECO	SMALL POWER PRODUCER 1	15	GT	NG	P	ZZ	
91/01	MAAC		NJ	PSCO	SMALLL QF'S - NUG	20	UN	UNK	P	ZZ	
91/01	MAAC		PA	GPUS	XIOX GREENHOUSE - NUG[e]	13.5	GT	NG	P	ZZ	
91/01	NPCC	NE	CT	UNK	Bio-Gen Torrington Ptnrshp	13	ST	WOD	T	ZZ	
91/01	NPCC	NE	CT	UNK	EXETAR ENERGY (OXFORD)	24.5	ST	ZZ	T	ZZ	
91/01	SERC	FL	FL	FLPC	PASCO WASTE RECOVERY 1	20	ZZ	REF	P	ZZ	
91/01	SERC	FL	FL	FLPC	UNIVERSITY OF FLORIDA 1	3	CG	NG	P	CG	
91/01	WSCC	CNV	CA	PG&E	QF COGENERATION 91	84	CG	UNK	P	CG	
91/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 91	3	GE	GST	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	QF HYDRO 91	22	HY	WAT	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	QF SOLID WASTE/BIOMASS 91	46	ZZ	UNK	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	QF WIND 91	14	WM	WND	P	ZZ	
91/01	WSCC	NWP	MT	MPC	AEM	35	CG	ZZ	P	CG	
91/01	WSCC	NWP	UT	UPLC	KAISER COGEN	45	CG	BIT	P	CG	
91/04	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-100[g]	CG	UNK	P	CG	
91/05	MAAC		UN	DPLC	UNIDENTIFIED CT/NUG	100	GT	UNK	P	ZZ	

[a,b,c,d,e] See page 160, footnotes a, b, c, d, and e, respectively.

[f] See page 161, footnote h.

[g] Contract expires.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
91/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[e]	191	UN	UNK	L	ZZ	
91/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[e]	47	UN	UNK	T	ZZ	
91/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[e]	14	UN	UNK	L	ZZ	
91/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[e]	47	UN	UNK	L	ZZ	
91/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[e]	50	UN	UNK	L	ZZ	
91/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS	13	HY	WAT	T	ZZ	
91/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[e]	500	UN	UNK	T	ZZ	
91/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	55	UN	UNK	P	ZZ	
91/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	936	UN	UNK	P	ZZ	
91/05	SPP	WC	OK	OKGE	COGENERATOR - AES	300	ST	BIT	U	CG	
91/06	MAAC		NJ	AECO	CCA	80	CT	NG	P	ZZ	
91/06	MAAC		NJ	AECO	DRMI	80	ZZ	REF	P	ZZ	
91/06	MAAC		NJ	AECO	QUALIFYING FACILITY 2	5.2	CC	NG	P	ZZ	
91/06	MAAC		UN	GPUS	NON-UTILITY GENERATION[f]	301	UN	UNK	P	ZZ	
91/06	NPCC	NE	VT	VTGP	Dodge Falls - Hydro Co.	2.5	HY	WAT	T	ZZ	
91/07	ECAR		WV	APS	Randolph	3	HY	WAT	P	ZZ	
91/07	NPCC	NE	CT	UNK	FLAGG/UNIROYAL (CCF 3)	24	ST	WOD	T	ZZ	
91/07	NPCC	NE	CT	UNK	SE CT Regional CRRA (Proctor)	13.9	ST	REF	T	ZZ	
91/07	NPCC	NY	NY	POAS	NON-UTILITY GENERATORS[e]	4.3	UN	UNK	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	1	IC	UNK	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	21	GE	GST	P	ZZ	
91/08	MAAC		NJ	PSCO	UNION COUNTY RRF - NUG	40	ST	REF	P	ZZ	
91/10	ECAR		PA	APS	Burgettstown	80	ST	COL	P	ZZ	
91/10	ECAR		UN	APS	PURPA Contingency	-25[g]	UN	UNK	P	ZZ	
91/10	SERC	FL	FL	FLPC	PINELLAS WASTE REC. NO.1	50	ZZ	REF	P	ZZ	
91/10	WSCC		AB	TAUC	NON-UTILITY GENERATION	125	CG	UNK	L	CG	
91/11	NPCC	NE	VT	VTGP	Winooski One Partnership	5	HY	WAT	T	ZZ	
91/12	MAAC		UN	GPUS	NON-UTILITY GENERATION[f]	105	UN	UNK	P	ZZ	
91/12	SERC	FL	FL	FLPC	CFR BIO-GEN CORP.	74	ZZ	WD	P	ZZ	
SUBTOTAL						3561					
92/01	ECAR		PA	APS	Pt. Marion	2	HY	WAT	P	ZZ	
92/01	ECAR		UN	DECO	One Facility	2	HY	WAT	P	ZZ	
92/01	ECAR		UN	DECO	Total of 2 Facilities	5	UN	UNK	P	ZZ	
92/01	ECAR		WV	APS	Grant Town	80	ST	COL	P	ZZ	
92/01	MAAC		NJ	AECO	SMALL POWER PRODUCER 2	15	GT	NG	P	ZZ	
92/01	MAAC		NJ	PSCO	SMALL QF'S - NUG	20	UN	UNK	P	ZZ	
92/01	MAAC		NJ	PSCO	SOMERSET COUNTY RRF - NUG	18	UN	UNK	P	ZZ	
92/01	NPCC	NE	CT	UNK	ARS POWER 1	32.2	ST	WOD	T	ZZ	
92/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	100[h]	ZZ	UNK	P	ZZ	
92/01	SERC	FL	FL	FLPL	BROWARD RES. REC. NO.	45	ZZ	REF	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF COGENERATION 92	18	CG	UNK	P	CG	
92/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 92	36	GE	GST	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF HYDRO 92	62	HY	WAT	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF SOLID WASTE/BIOMASS 92	24	ZZ	UNK	P	ZZ	
92/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
92/01	WSCC	NWP	OR	IPC	SMALL HYDRO	6	HY	WAT	P	ZZ	

[a,b,c,d] See page 160, footnotes a, b, c, and d, respectively.

[e] See page 160, footnote f. [f] See page 160, footnote e.

[g] PURPA contingency to recognize that not all of the PURPA capacity will finally be developed.

[h] See page 161, footnote h.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
92/02	MAAC		NJ	AECO	CPA	116	CT	NG	P	ZZ	
92/02	MAAC		UN	GPUS	NON-UTILITY GENERATION[e]	80	UN	UNK	P	ZZ	
92/03	ECAR		UN	APS	PURPA 1	49	ST	COL	P	ZZ	
92/03	MAAC		NJ	PSCO	HUDSON COUNTY RRF - NUG	38	ST	REF	P	ZZ	
92/03	MAAC		NJ	PSCO	PASSAIC COUNTY RRF - NUG	40	ST	REF	P	ZZ	
92/03	MAAC		UN	GPUS	NON-UTILITY GENERATION[e]	80	UN	UNK	P	ZZ	
92/04	ECAR		PA	APS	Schenley	80	ST	COL	P	ZZ	
92/04	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-300[f]	CG	UNK	P	CG	
92/04	WSCC	RMP	CO	PSC	A.B. LATERAL	35	HY	WAT	L	ZZ	
92/04	WSCC	RMP	CO	PSC	HORSE MOUNTAIN POWER GEN	25	CG	BIT	L	CG	
92/04	WSCC	RMP	CO	PSC	SHAVANO FALLS	3	HY	WAT	L	ZZ	
92/05	MAAC		NJ	PSCO	MERCER COUNTY RRF - NUG	19	ST	REF	P	ZZ	
92/05	MAAC		UN	DPLC	NON-UTILITY GENERATION	100	UN	UNK	P	ZZ	
92/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[g]	182	UN	UNK	L	ZZ	
92/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[g]	47	UN	REF	P	ZZ	
92/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[g]	16.8	UN	UNK	T	ZZ	
92/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS	40	HY	WAT	T	ZZ	
92/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS	13	HY	WAT	L	ZZ	
92/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[g]	325	UN	UNK	L	ZZ	
92/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	20	UN	UNK	P	ZZ	
92/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	575	UN	UNK	P	ZZ	
92/06	MAAC		NJ	AECO	QUALIFYING FACILITY 3	19.8	CC	NG	P	ZZ	
92/07	NPCC	NY	NY	POAS	NON-UTILITY GENERATORS[g]	3.4	UN	UNK	P	ZZ	
92/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
92/07	WSCC	RMP	CO	PSC	SUNLAWN EASTSIDE	25	CG	BIT	T	CG	
92/09	ECAR		PA	APS	Shannopin	80	ST	COL	P	ZZ	
92/11	MAAC		UN	GPUS	NON-UTILITY GENERATION[e]	80	UN	UNK	P	ZZ	
SUBTOTAL						2263					
93/01	ECAR		UN	DECO	Undesignated Number	50	UN	UNK	P	ZZ	
93/01	ECAR		UN	DP&L	Undesignated	6	UN	UNK	P	ZZ	
93/01	ECAR		UN	PSI	Unidentified	14	UN	UNK	P	ZZ	
93/01	MAAC		NJ	AECO	KCS	206	ST	BIT	P	ZZ	
93/01	MAAC		NJ	AECO	SMALL POWER PRODUCER 3	15	ST	BIT	P	ZZ	
93/01	MAAC		NJ	PSCO	NON-UTILITY BIDS	100	UN	UNK	P	ZZ	
93/01	MAAC		NJ	PSCO	SMALL QF'S - NUG	20	UN	UNK	P	ZZ	
93/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	90[h]	ZZ	UNK	P	ZZ	
93/01	SERC	FL	FL	FLPC	GENERAL PEAT RESOURCES 1	52	ZZ	PEA	P	ZZ	
93/01	SERC	FL	FL	FLPL	AES CEDAR BAY (1)	225	CG	BIT	P	CG	
93/01	SERC	FL	FL	FLPL	BIOMASS FACILITY 03 (1)	10	ZZ	WD	P	ZZ	
93/01	SERC	FL	FL	FLPL	INDUSTRIAL COGEN 03	250	CG	NG	P	CG	
93/01	SERC	FL	FL	FLPL	SOLID WASTE EXPANSION 01	50	ZZ	WD	P	ZZ	
93/01	SERC	FL	FL	TAEC	REFUSE PLANT	8	ZZ	REF	P	ZZ	
93/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	2	CG	UNK	P	CG	
93/01	WSCC	CNV	CA	SCE	COOLWATER IGCC	100	ST	ZZ	V	ZZ	
93/04	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	100	CG	UNK	P	CG	
93/04	WSCC	RMP	CO	PSC	MONFORT COGEN	122	CG	NG	U	CG	
93/05	NPCC	NY	NY	CEHG	NON-UTILITY GENERATORS	2	HY	WAT	L	ZZ	

[a,b,c,d,e] See page 160, footnotes a, b, c, d, and e, respectively.

[f] Contract expires.

[g] See page 160, footnote f.

[h] See page 161, footnote h.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
93/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[e]	40	UN	UNK	L	ZZ	
93/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[e]	30	UN	REF	L	ZZ	
93/05	NPCC	NY	NY	LOIL	NON-UTILITY GENERATORS[e]	74.9	UN	UNK	L	ZZ	
93/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS	0.9	HY	WAT	L	ZZ	
93/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[e]	49.7	UN	UNK	T	ZZ	
93/05	NPCC	NY	NY	NEYE	NON-UTILITY GENERATORS[e]	55	UN	UNK	L	ZZ	
93/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS[e]	128	UN	UNK	P	ZZ	
93/05	NPCC	NY	NY	NIMP	NON-UTILITY GENERATORS	3.3	HY	WAT	P	ZZ	
93/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	57	UN	UNK	P	ZZ	
93/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	457	UN	UNK	P	ZZ	
93/07	MAPP		ND	MDU	SGI INTERNATL-MDU	25	ST	LIG	P	ZZ	
93/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	10	IC	UNK	P	ZZ	
93/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
93/07	WSCC	NWP	OR	PGE	MISC. RESOURCES	55	ZZ	UNK	P	ZZ	
93/10	MAAC		NJ	AECO	CCLP	224	ST	BIT	P	ZZ	
93/11	NPCC	NE	CT	UNK	Flagg/Perkin Elmer Incr(CCF2)	0.85	CC	NG	T	ZZ	
93/12	ERCOT		TX	HL&P	OCCIDENTAL-NUG	-225[f]	CT	NG	P	CG	
SUBTOTAL						2413					
94/01	ECAR		UN	DECO	One Facility	1	HY	WAT	P	ZZ	
94/01	ECAR		UN	DP&L	Undesignated	7	UN	UNK	P	ZZ	
94/01	MAAC		NJ	AECO	SMALL POWER PRODUCEP 4	5	ST	BIT	P	ZZ	
94/01	MAAC		NJ	PSCO	NON-UTILITY BIDS	100	UN	UNK	P	ZZ	
94/01	MAAC		NJ	PSCO	SMALL QF'S - NUG	20	UN	UNK	P	ZZ	
94/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	50[g]	ZZ	UNK	P	ZZ	
94/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	2	CG	UNK	P	CG	
94/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
94/04	WSCC	RMP	CO	PSC	FT LUPTON COGEN	150	CG	NG	L	CG	
94/04	WSCC	RMP	CO	PSC	FT ST VRAIN	330	ST	NG	P	ZZ	
94/05	MAAC		UN	DPLC	NON-UTILITY GENERATION	100	UN	UNK	P	ZZ	
94/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	40	UN	UNK	P	ZZ	
94/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	280	UN	UNK	P	ZZ	
94/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
94/12	ERCOT		TX	HL&P	DOW CHEMICAL-NUG	-325[f]	GT	NG	P	CG	
SUBTOTAL						766					
95/01	ECAR		UN	DECO	Total of 2 Facilities	6	UN	REF	P	ZZ	
95/01	ECAR		UN	DP&L	Undesignated	10	UN	UNK	P	ZZ	
95/01	ECAR		UN	PSI	Unidentified	44	UN	UNK	P	ZZ	
95/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	50[g]	ZZ	UNK	P	ZZ	
95/01	SERC	FL	FL	FLPL	SOLID WASTE FAC. 05	25	ZZ	REF	P	ZZ	
95/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	3	CG	UNK	P	CG	
95/03	ERCOT		TX	HL&P	BAYOU COGENERATION-NUG	-270[f]	GT	NG	P	CG	
95/04	WSCC	RMP	CO	PSC	COLO. POWER PROJECT #2	68	CG	NG	T	CG	
95/04	WSCC	RMP	CO	PSC	SILVER LAKE	2	HY	WAT	T	ZZ	
95/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[e]	180	UN	UNK	L	ZZ	
95/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	50	UN	UNK	P	ZZ	
95/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	175	UN	UNK	P	ZZ	

[a,b,c,d] See page 160, footnotes a, b, c, and d, respectively.

[e] See page 160, footnote f.

[f] Contract expires.

[g] See page 161, footnote h.

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In-Svc Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
95/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
95/07	WSCC	NWP	OR	PGE	MISC. RESOURCES	55	ZZ	UNK	P	ZZ	
95/10	ECAR		MD	APS	AES Cumberland	180	ST	COL	P	ZZ	
95/10	ECAR		UN	APS	PURPA 2	130	ST	COG	P	ZZ	
95/10	ECAR		UN	APS	PURPA Contingency	-25[e]	UN	UNK	P	ZZ	
95/12	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-70[f]	CG	UNK	P	CG	
SUBTOTAL						618					
96/01	ECAR		UN	DECO	Total of 2 Facilities	11	UN	REF	P	ZZ	
96/01	ECAR		UN	DP&L	Undesignated	9	UN	UNK	P	ZZ	
96/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[h]	ZZ	UNK	P	ZZ	
96/01	SERC	FL	FL	FLPL	SOLID WASTE FAC. 02	40	ZZ	REF	P	ZZ	
96/01	WSCC	AZN	AZ	APS	GENERIC COGEN 1	2	CG	UNK	L	CG	
96/01	WSCC	AZN	AZ	APS	REFUSE 1	10	ZZ	REF	L	ZZ	
96/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	2	CG	UNK	P	CG	
96/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[g]	70	UN	REF	P	ZZ	
96/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	25	UN	UNK	P	ZZ	
96/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
SUBTOTAL						194					
97/01	ECAR		UN	DP&L	Undesignated	9	UN	UNK	P	ZZ	
97/01	ECAR		UN	PSI	Unidentified	64	UN	UNK	P	ZZ	
97/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[h]	ZZ	UNK	P	ZZ	
97/01	SERC	FL	FL	FLPL	BIOMASS FACILITY 04	10	ZZ	NG	P	ZZ	
97/01	WSCC	AZN	AZ	APS	GENERIC COGEN 2	2	CG	UNK	L	CG	
97/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	3	CG	UNK	P	CG	
97/01	WSCC	NWP	OR	PGE	MISC. RESOURCES	135	CG	UNK	P	CG	
97/05	NPCC	QUE	QB	HYQB	NON-UTILITY GENERATOR	25	UN	UNK	P	ZZ	
97/05	SPP	WC	OK	OKGE	COGENERATOR - MCPC	100	CT	NG	P	CG	
97/06	MAIN	WUM	WI	MGE	SOLID WASTE	12	UN	REF	P	ZZ	
97/06	MAIN	WUM	WI	WPS	COGEN	50	ST	UNK	P	CG	
97/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
97/07	WSCC	NWP	OR	PGE	MISC. RESOURCES	60	ZZ	UNK	P	ZZ	
SUBTOTAL						495					
98/01	ECAR		UN	DECO	One Facility	10	UN	REF	P	ZZ	
98/01	ECAR		UN	DP&L	Undesignated	9	UN	UNK	P	ZZ	
98/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[h]	ZZ	UNK	P	ZZ	
98/01	SERC	FL	FL	FLPL	SOLID WASTE EXP. 03	20	ZZ	REF	P	ZZ	
98/01	WSCC	CNV	CA	LDWP	MISC. SMALL COGEN	2	CG	UNK	P	CG	
98/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
98/05	NPCC	NY	NY	COEN	NON-UTILITY GENERATORS[g]	45	UN	REF	P	ZZ	
98/06	ERCOT		TX	HL&P	AES DEEPWATER-NUG	-136[f]	ST	PC	P	CG	
98/06	MAIN	WUM	WI	WPS	COGEN	17	ST	UNK	P	CG	
98/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN.	5	CG	UNK	P	CG	
SUBTOTAL						-7					
TOTAL						19076					

[a,b,c,d] See page 160, footnotes a, b, c, and d, respectively.

[e] See page 164, footnote g.

[f] Contract expires.

[g] See page 160, footnote f.

[h] See page 161, foonote h.

APPENDIX M

North American
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Jointly-Owned Generating Unit Additions[a]

(January 1, 1989 – December 31, 1998)

In-Svc Date	Region	Name	MW-S[b]	Type[c]	Fuel[c]	Comments[d]
89/05	WSCC	Don Pedro Unit 4	32	HY	WAT	TID (21.9MW), MID (10.1); Operator: TID
89/06	ERCOT	South Texas Project #2	1250	NP	UR	HL&P (385 MW), CPSA (350), CP&L (315), AUST (200)
89/06	SERC	Indian River CT A	38	GT	NG	ORLA (18.5 MW), FMPA (15), KISM (4.5)
89/06	SERC	Vogtle Unit 2	1086	NP	UR	JOINTLY OWNED BY GEPC, OPC, MEAG, & DALTON
89/07	SERC	Indian River CT B	38	GT	NG	ORLA (18.5 MW), FMPA (15), KISM (4.5)
89/12	ERCOT	Comanche Peak #1	1150	NP	UR	TUEC (1125 MW), TEX-LA Electric Cooperative (25)
SUBTOTAL			3594			
90/01	WSCC	Hydroelec. Proj No. One	200	HY	WAT	OPER.: NCPA; Owners: 10 Municipals & 1 Rural
90/10	WSCC	Sheerness 2	366	ST	SUB	TAUC (183MW), APL (183)
SUBTOTAL			566			
91/06	ECAR	W.H. Zimmer 1	1300[e]	ST	COL	CG&E (605 MW), DP&L (365), AEP (330)
91/06	ERCOT	Comanche Peak #2	1150	NP	UR	TUEC (1125 MW), TEX-LA Electric Cooperative (25)
SUBTOTAL			2450			
95/01	WSCC	Geo Plt. 3 Unit 5	53	GE	GST	OPER.: NCPA; Owners: 10 Municipals & 1 Rural
SUBTOTAL			53			
Under Review[f]	ECAR	Perry 2	1182[g]	NB	UR	CE(605MW),OE(416),DLCO(161)
SUBTOTAL			1182			
TOTAL			7845 (6,663)[g]			

Jointly-Owned Generating Unit Retirements[a]

(January 1, 1989 – December 31, 1998)

Ret Date	Region	Name	MW-S[b]	Type[c]	Fuel[c]	Comments[d]
96/01	SERC	Gaston Unit A	16	CT	OIL	ALAP(8MW), GEPC(8)
SUBTOTAL			16			
TOTAL			16			

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[a] Electric utility units only. Excludes non-utility generators (NUGs).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Distribution of the jointly-owned units among utilities in megawatts (MW).

[e] The owners of this plant, which has been under construction as a nuclear unit, announced on January 21, 1984 that the plant design will be converted from nuclear to coal-fired.

[f] Construction activity on Perry 2 has been suspended. Options with respect to the completion and timing of Perry 2 are being evaluated. A decision regarding the completion of the unit is not expected until all options have been evaluated.

[g] Perry 2 was not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. The unit is listed here for information only.

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Generating Unit Retirements[a]

(January 1, 1989 - December 31, 1998)

Ret Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
89/04	MAAC		PA	PLCO	SURBURBAN 7	20	GT	FO2	R	U	
89/05	MAAC		PA	PECO	RICHMOND D	2.7	IC	FO2	R	U	
89/05	MAAC		VA	DPLC	CAPE CHARLES 1	0.8	IC	FO2	R	U	
89/05	MAAC		VA	DPLC	CAPE CHARLES 2	0.8	IC	FO2	R	U	
89/10	WSCC		AB	EDMP	ROSSDALE 6-7	44	GT	NG	R	U	
89/12	MAIN	WUM	WI	WEP	OAK CREEK 1	95	ST	BIT	R	U	
89/12	MAIN	WUM	WI	WEP	OAK CREEK 2	95	ST	BIT	R	U	
89/12	WSCC	RMP	CO	CEC	PUEBLO 1	8	ST	NG	R	U	
SUBTOTAL						266					
90/01	ECAR		MI	CP	Cobb 1	52	ST	COL	R	U	
90/01	ECAR		MI	CP	Cobb 2	52	ST	COL	R	U	
90/01	ECAR		MI	CP	Cobb 3	52	ST	COL	R	U	
90/01	SERC	SOU	AL	ALAP	GORGAS UNIT 5	61	ST	BIT	R	U	
90/05	MAAC		PA	GPUS	WILLIAMSBURG 5	32	ST	BIT	R	U	
90/06	SPP	N	KS	EMDE	RIVERTON 3,4	20	ST	NG	R	U	
90/06	WSCC	AZN	AZ	TEP	DEMOSS PETRIE 1	15	ST	NG	R	U	
90/06	WSCC	AZN	AZ	TEP	DEMOSS PETRIE 2	13	ST	NG	R	U	
90/06	WSCC	AZN	AZ	TEP	DEMOSS PETRIE 3	24	ST	NG	R	U	
90/06	WSCC	AZN	AZ	TEP	DEMOSS PETRIE 4	46	ST	NG	R	U	
90/06	WSCC	RMP	CO	PSC	FT ST VRAIN 1	230	NH	TH	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 1	48	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 2	48	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 3	14	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 4	14	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 5	14	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 6	15	GT	FO2	R	U	
90/10	WSCC		AB	APL	FORT MCMURRAY	14	GT	NG	R	U	
90/10	WSCC		AB	CMH	MEDICINE HAT 4	3	ST	NG	R	U	
90/10	WSCC		AB	CMH	MEDICINE HAT 6	5	ST	NG	R	U	
90/10	WSCC		AB	EDMP	ROSSDALE 2-4	70	ST	NG	R	U	
90/11	SERC	FL	FL	JACO	Southside 1	0	ST	UNK	R	U	
90/12	ECAR		IN	NIPS	Michigan City 2[e]	60	ST	NG	R	U	
90/12	MAAC		PA	GPUS	FRONT STREET 1-3,5	90	ST	BIT	R	U	
90/12	MAAC		PA	GPUS	FRONT STREET 4	28	ST	BIT	R	U	
90/12	WSCC	RMP	CO	CEC	PUEBLO 2	8	ST	NG	R	U	
SUBTOTAL						1028					
91/01	SERC	FL	FL	JACO	Southside 2	0	ST	UNK	R	U	
91/01	SPP	SE	AR	MSUI	LAKE CATHERINE 1	45	ST	NG	R	U	
91/01	SPP	SE	AR	MSUI	LAKE CATHERINE 2	44	ST	NG	R	U	
91/03	SPP	N	MO	KACP	GRAND AVE. 7	30	ST	NG	R	U	
91/03	SPP	N	MO	KACP	GRAND AVE. 9	38	ST	NG	R	U	
91/04	ERCOT		TX	AUST	SEAHOLM #5	18	ST	NG	R	U	
91/04	ERCOT		TX	AUST	SEAHOLM #6	18	ST	NG	R	U	
91/11	ECAR		IN	NIPS	Michigan City 3[e]	60	ST	NG	R	U	
91/11	NPCC	NE	CT	NOEU	BRANFORD 10[f]	17.2	JE	JF	R	U	
91/11	NPCC	NE	CT	NOEU	DOREEN 10[f]	16.6	JE	JF	R	U	

[a] Electric utility units only. Excludes non-utility generators (NUG).

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on page 173.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] Conceptual retirement date, pending further study.

[f] Retirement may be deferred if additional capacity sales are made.

APPENDIX N

North American
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Generating Unit Retirements[a]
(January 1, 1989 – December 31, 1998)

Ret Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
91/11	NPCC	NE	CT	NOEU	FRANKLIN DRIVE 10[e]	17.2	JE	JF	R	U	
91/11	NPCC	NE	CT	NOEU	SILVER LAKE 10[e]	14	GT	FO2	R	U	
91/11	NPCC	NE	CT	NOEU	SILVER LAKE 11[e]	14	GT	FO2	R	U	
91/11	NPCC	NE	CT	NOEU	SILVER LAKE 12[e]	14	GT	FO2	R	U	
91/11	NPCC	NE	CT	NOEU	SILVER LAKE 13[e]	14	GT	FO2	R	U	
91/11	NPCC	NE	CT	NOEU	TORRINGTON TERMINAL[e]	17.2	JE	JF	R	U	
91/11	NPCC	NE	CT	NOEU	TRACY 10[e]	13.5	JE	JF	R	U	
91/11	NPCC	NE	CT	NOEU	TUNNEL JET 10[e]	17.2	JE	JF	R	U	
91/11	NPCC	NE	CT	NOEU	WOODLAND ROAD 10[e]	16.6	JE	JF	R	U	
SUBTOTAL						425					
92/01	ECAR		OH	CG&E	Miami Fort 5	80	ST	COL	R	U	
92/01	SPP	SE	LA	MSUI	NINEMILE 1	70	ST	NG	R	U	
92/01	SPP	SE	MS	MSUI	REX BROWN 3	69	ST	NG	R	U	
92/03	SPP	SE	LA	CAJN	OPELOUSAS 1 & 2	34	ST	GAS	R	U	
92/05	MAAC		MD	DPLC	EASTON 3	0.5	IC	FO2	R	U	
92/05	MAAC		MD	DPLC	EASTON 4	0.6	IC	FO2	R	U	
92/05	MAAC		MD	DPLC	EASTON 5	0.8	IC	FO2	R	U	
92/05	MAAC		MD	DPLC	EASTON 6	1.2	IC	FO2	R	U	
92/07	MAPP		SA	SPC	ESTEVAN 2	14	ST	LIG	R	U	
92/07	MAPP		SA	SPC	ESTEVAN 3	19	ST	LIG	R	U	
92/07	MAPP		SA	SPC	ESTEVAN 4	28	ST	LIG	R	U	
92/07	WSCC	NWP	ID	USPN	MINIDOKA 1-5	6	HY	WAT	R	U	
92/09	NPCC	NE	CT	NOEU	DEVON 3[e,f]	68	ST	FO6	R	U	
92/09	NPCC	NE	CT	NOEU	DEVON 4[e,f]	50	ST	FO6	R	U	
92/10	ECAR		OH	CG&E	Dicks Creek GT 3	14	GT	NG	R	U	
92/10	ECAR		OH	CG&E	Dicks Creek GT 4	15	GT	FO2	R	U	
92/10	ECAR		OH	CG&E	Dicks Creek GT 5	15	GT	FO2	R	U	
92/11	MAPP		MN	SMMP	FAIRMONT 5	13.6	ST	BIT	R	U	
SUBTOTAL						499					
93/01	SERC	FL	FL	GAMW	J. R. Kelly 6	15	ST	NG	R	U	
93/01	SPP	SE	AR	MSUI	HARVEY COUCH 1	25	ST	NG	R	U	
93/05	NPCC	NE	CT	NOEU	DEVON 5[e,f]	48	ST	FO6	R	U	
93/05	NPCC	NE	CT	NOEU	DEVON 6[e,f]	68	ST	FO6	R	U	
93/05	NPCC	NE	CT	NOEU	MIDDLETOWN 1[e,f]	69.5	ST	FO6	R	U	
93/06	WSCC	CNV	NV	NEVP	CLARK 5	70	GT	NG	R	U	
93/06	WSCC	CNV	NV	NEVP	CLARK 6	70	GT	NG	R	U	
93/10	WSCC		BC	BCHA	BOSTON BAR DIESEL	2	IC	FO2	R	U	
93/10	WSCC		BC	BCHA	LYTTON DIESEL	3	IC	FO2	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE 1[g]	13.5	ST	FO6	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE 3[g]	0	ST	FO6	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE 4[g]	2	ST	FO6	R	U	
93/11	NPCC	NE	NH	PSNH	SCHILLER 3[g]	0	ST	FO6	R	U	
93/12	ERCOT		TX	TUEC	HANDLEY #1	45	ST	NG	R	U	
93/12	ERCOT		TX	TUEC	HANDLEY #2	80	ST	NG	R	U	
93/12	ERCOT		TX	TUEC	NORTH MAIN #4	80	ST	NG	R	U	
93/12	ERCOT		TX	TUEC	PERMIAN BASIN DIESEL	1	ST	FO2	R	U	

[a,b,c,d] See page 169, footnotes a, b, c, and d, respectively.

[e] See page 169, footnote f.

[f] Candidates for repowering in a combined cycle configuration.

[g] Candidates for life extension.

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Generating Unit Retirements[a]
(January 1, 1989 – December 31, 1998)

Ret Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
93/12	ERCOT		TX	TUEC	TRINIDAD #5	70	ST	NG	R	U	
SUBTOTAL						662					
94/01	SPP	SE	AR	MSUI	LAKE CATHERINE 3	90	ST	NG	R	U	
94/01	SPP	SE	LA	MSUI	NINEMILE 2	90	ST	NG	R	U	
94/01	SPP	SE	MS	MSUI	DELTA 2	95	ST	NG	R	U	
94/01	SPP	SE	MS	MSUI	REX BROWN 1	36	ST	NG	R	U	
94/05	MAAC		MD	DPLC	EASTON 7	2	IC	FO2	R	U	
94/06	WSCC	CNV	NV	NEVP	CLARK 7	70	GT	NG	R	U	
94/06	WSCC	CNV	NV	NEVP	CLARK 8	70	GT	NG	R	U	
94/12	ERCOT		TX	TUEC	DALLAS #3	75	ST	NG	R	U	
94/12	ERCOT		TX	TUEC	DALLAS #9	70	ST	NG	R	U	
94/12	WSCC	RMP	CO	CEC	ROCKY FORD 1	8	ST	NG	R	U	
SUBTOTAL						606					
95/01	SERC	FL	FL	FLPC	Firm Purchase 1	200	UN	UNK	R	U	
95/01	SPP	SE	AR	MSUI	H. COUCH 2	122	ST	NG	R	U	
95/04	ERCOT		TX	AUST	SEAHOLM #7	14	ST	NG	R	U	
95/04	ERCOT		TX	AUST	SEAHOLM #8	14	ST	NG	R	U	
95/05	MAPP		NE	NPPD	DIESEL GROUP	4.05	IC	FO2	R	U	
95/06	SPP	N	KS	EMDE	RIVERTON 6	32	ST	NG	R	U	
95/10	ECAR		OH	CG&E	Dicks Creek GT 1	92	JE	NG[e]	R	U	
95/10	ERCOT		TX	CP&L	LA PALMA #7	46	GT	NG	R	U	
95/10	MAIN	CE	IL	CECO	WAUKEGAN 6	100	ST	SUB	R	U	
95/10	WSCC		AB	APL	STURGEON 1-2	13	GT	NG	R	U	
SUBTOTAL						637					
96/01	SERC	FL	FL	GAMW	J. R. Kelly 7	20	ST	NG	R	U	
96/01	SERC	SOU	AL	SOEG	GASTON UNIT A	16	CT	OIL	R	U	J
96/01	SPP	SE	LA	MSUI	NINEMILE 3	125	ST	NG	R	U	
96/05	SPP	SE	LA	LAFA	NATCHITOCHES 10	26	ST	NG	R	U	
96/05	SPP	SE	LA	LAFA	NATCHITOCHES 2	2	IC	NG	R	U	
96/05	SPP	SE	LA	LAFA	NATCHITOCHES 3	2	IC	NG	R	U	
96/05	SPP	SE	LA	LAFA	NATCHITOCHES 6	3	IC	NG	R	U	
96/05	SPP	SE	LA	LAFA	NATCHITOCHES 7	3	IC	NG	R	U	
96/05	SPP	SE	LA	LAFA	NATCHITOCHES 8	6	ST	NG	R	U	
96/05	SPP	SE	LA	LAFA	NATCHITOCHES 9	13	ST	NG	R	U	
96/10	MAIN	CE	IL	CECO	STATE LINE 3	187	ST	SUB	R	U	
96/10	WSCC		AB	APL	SIMONETTE	12	GT	NG	R	U	
96/11	MAPP		MN	SMMP	GRAND MARAIS 5	1.18	IC	FO2	R	U	
96/12	ERCOT		TX	TUEC	MORGAN CREEK #2	22	ST	NG	R	U	
96/12	ERCOT		TX	TUEC	MORGAN CREEK #3	44	ST	NG	R	U	
96/12	ERCOT		TX	TUEC	MOUNTAIN CREEK #2	33	ST	NG	R	U	
96/12	ERCOT		TX	TUEC	MOUNTAIN CREEK #3	70	ST	NG	R	U	
96/12	ERCOT		TX	WETU	RIO PECOS #5	35	CA	NG	R	U	
SUBTOTAL						620					
97/01	SPP	SE	AR	MSUI	CECIL LYNCH 2	55	ST	NG	R	U	

[a,b,c,d] See page 169, footnotes a, b, c, and d, respectively.

[e] Turbine driven by exhuast gas of 10 jet engines.

Generating Unit Retirements[a]

(January 1, 1989 – December 31, 1998)

Ret Date	Region	Subreg	St/Prov	Utility	Name	MW-S[b]	Type[c]	Fuel[c]	Status[c]	U/NU[c]	Joint[d]
97/05	MAAC		MD	DPLC	EASTON 8	2	IC	FO2	R	U	
97/10	ECAR		OH	CG&E	Beckjord GT 1	46	GT	FO2	R	U	
97/10	ECAR		OH	CG&E	Beckjord GT 2	47	GT	FO2	R	U	
97/10	ECAR		OH	CG&E	Beckjord GT 3	47	GT	FO2	R	U	
97/10	ECAR		OH	CG&E	Beckjord GT 4	46	GT	FO2	R	U	
97/10	MAIN	CE	IL	CECO	WILL COUNTY 1	151	ST	SUB	R	U	
97/10	MAIN	CE	IL	CECO	WILL COUNTY 2	148	ST	SUB	R	U	
97/10	MAIN	CE	IL	CECO	WILL COUNTY 3	251	ST	SUB	R	U	
97/11	NPCC	NE	NH	PSNH	MERRIMACK JET 2 [e]	19.8	JE	FO1	R	U	
97/11	NPCC	NE	NH	PSNH	WHITE LAKE JET [e]	20.2	JE	FO1	R	U	
97/12	ERCOT		TX	WETU	ABILENE #4	18	ST	NG	R	U	
97/12	ERCOT		TX	WETU	CONCHO #3	15	ST	NG	R	U	
97/12	ERCOT		TX	WETU	FT. STOCKTON #2	5	GT	NG	R	U	
97/12	ERCOT		TX	WETU	LAKE PAULINE #1	19	ST	NG	R	U	
97/12	ERCOT		TX	WETU	RIO PECOS #6	96	ST	NG	R	U	
SUBTOTAL						986					
98/01	MAAC		NJ	PSCO	SEWAREN 1	104	ST	UNK	R	U	
98/01	MAAC		NJ	PSCO	SEWAREN 2	111	ST	UNK	R	U	
98/01	MAIN	WUM	WI	WPS	PULLIAM 3, 4	54	ST	BIT	R	U	
98/01	SERC	FL	FL	GAMW	J. R. Kelly 1	14	GT	NG	R	U	
98/01	SERC	FL	FL	GAMW	J. R. Kelly 2	14	GT	NG	R	U	
98/01	SERC	SOU	MS	MIPR	STANDARD OIL UNITS 1-2	30	CT	NG	R	U	
98/01	SPP	SE	AR	MSUI	MOSES 1	63	ST	NG	R	U	
98/01	SPP	SE	AR	MSUI	MOSES 2	63	ST	NG	R	U	
98/01	SPP	SE	LA	MSUI	MICHOUD 1	113	ST	NG	R	U	
98/01	SPP	SE	MS	MSUI	NATCHEZ 1	73	ST	NG	R	U	
98/04	ERCOT		TX	AUST	SEAHOLM #9	36	ST	NG	R	U	
98/11	NPCC	NE	NH	PSNH	CONWAY DIESELS 1-3[e]	3	IC	FO2	R	U	
98/11	NPCC	NE	NH	PSNH	MERRIMACK JET 1[e]	17	JE	FO1	R	U	
98/11	NPCC	NE	NH	PSNH	SCHILLER JET[e]	19.4	JE	FO1	R	U	
98/12	ERCOT		TX	TUEC	EAGLE MOUNTAIN #1	115	ST	NG	R	U	
98/12	ERCOT		TX	TUEC	PARKDALE #1	87	ST	NG	R	U	
98/12	ERCOT		TX	TUEC	RIVERCREST #1	110	ST	NG	R	U	
98/12	MAPP		MN	SMMP	LITCHFIELD 5	2.02	IC	NG	R	U	
98/12	MAPP		MN	SMMP	LITCHFIELD 6	1.99	IC	NG	R	U	
98/12	MAPP		MN	SMMP	PRINCETON 4	0.78	IC	FO2	R	U	
98/12	MAPP		MN	SMMP	PRINCETON 6	2.42	IC	FO2	R	U	
98/12	MAPP		MN	SMMP	REDWOOD FALLS SE 1	2.16	IC	NG	R	U	
98/12	MAPP		MN	SMMP	WELLS 4	2.37	IC	NG	R	U	
SUBTOTAL						1038					
TOTAL						6767					

[a,b,c,d] See page 169, footnotes a, b, c, and d, respectively.

[e] See page 170, footnote g.

CODES AND ABBREVIATIONS FOR GENERATING UNIT ADDITIONS AND RETIREMENTS
(Appendixes D through N)

UNIT TYPE

ST	Steam Turbine-Non Nuclear
NB	Steam-BWR Nuclear
NP	Steam-PWR Nuclear
NH	Steam-HTGR Nuclear
CD	CANDU
IC	Internal Combustion
GT	Combustion Turbine (Gas Turbine)
HY	Conventional Hydro
PS	Pumped Storage Hydro
CW	Combined Cycle-Steam Portion-Waste Heat Only
CA	Combined Cycle-Steam Portion-Auxiliary Fired
CT	Combined Cycle-Combustion Turbine Portion
CC	Combined Cycle
IG	Integrated Coal Gasification Combined Cycle (IGCC)
CG	Cogeneration
JE	Jet Engine
FC	Fuel Cell
SO	Solar
WM	Wind Power
GE	Geothermal
ZZ	None of the above
UN	Unknown at this time

CONSTRUCTION STATUS

P	Planned for installation, but not utility authorized
L	Regulatory approval pending, but not under construction
T	Regulatory approval received, but not under construction
U	Under construction, less than approximately 50% of plant completed
V	Under construction, greater than approximately 50% of plant completed
R	Planned for retirement

OWNERSHIP (or U/NU)

U	Utility
CG	Non-utility Cogenerator
ZZ	Non-utility Small Power Producer

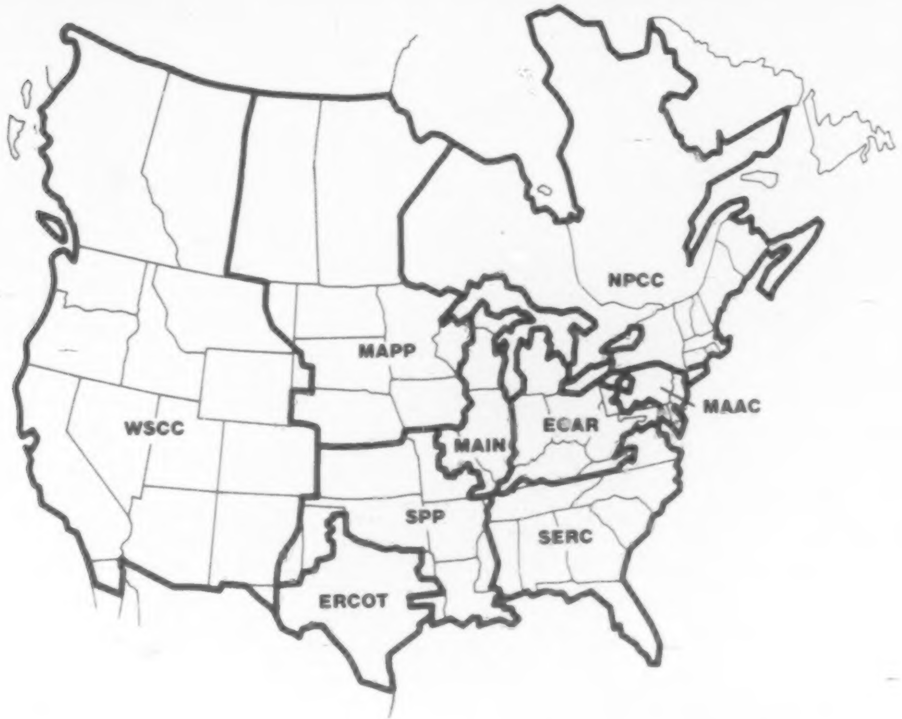
FUEL TYPE

WH	Waste Heat
COL	Coal-General
BIT	Bituminous Coal
SUB	Sub-Bituminous Coal
ANT	Anthracite Coal
LIG	Lignite Coal
PC	Petroleum Coke
LNG	Liquified Natural Gas
MTH	Methanol
GAS	Gas-General
NG	Natural Gas
RG	Refinery Gas
BFG	Blast Furnace Gas
COG	Coke Oven Gas
UNK	Unknown at this time
GST	Geothermal Steam
MUL	Multi-Fueled
REF	Refuse-Solid Waste
OIL	Oil-General
FO1	No. 1 Fuel Oil
FO2	No. 2 Fuel Oil
FO4	No. 4 Fuel Oil
FO5	No. 5 Fuel Oil
FO6	No. 6 Fuel Oil
CRU	Crude Oil
TOP	Top Crude Oil
JF	Jet Fuel
KER	Kerosene
LPG	Liquid Propane Gas
RRO	Re-Refined Motor Oil
SNG	Synthetic Natural Gas
UR	Uranium
PL	Plutonium
WAT	Water
TH	Thorium
SUN	Sun
WND	Wind
G/C	Gas and/or Coal
O/C	Oil and/or Coal
W/G	Wood and/or Gas
W/O	Wood and/or Oil
WOD	Wood
WD	Wood and Wood Waste
PEA	Peat
ZZ	None of the above

CODES AND ABBREVIATIONS – NERC Regions and Subregions

REGIONS	COUNTRY	SUBREGIONS
ECAR East Central Area Reliability Coordination Agreement	U.S.	None
ERCOT Electric Reliability Council of Texas	U.S.	None
MAAC Mid-Atlantic Area Council	U.S.	None
MAIN Mid-America Interconnected Network	U.S.	CE – **Cmnwlth Edison** – Commonwealth Edison Company Subregion
	U.S.	EM – **East Missouri** – East Missouri Subregion
	U.S.	SCI – **S Cent Illinois** – South Central Illinois Group
	U.S.	WUM – **Wis-Upper Mich** – Wisconsin-Upper Michigan Subregion
MAPP Mid-Continent Area Power Pool	U.S.	None
	CANADA	None
NPCC Northeast Power Coordinating Council	U.S.	NY – **New York** – New York Power Pool
	U.S.	NE – **NEPOOL** – New England Power Pool
	CANADA	NB – **New Brunswick** – New Brunswick Electric Power Commission
	CANADA	NS – **Nova Scotia** – Nova Scotia Power Corporation
	CANADA	ONT – **Ontario** – Ontario Hydro
	CANADA	QUE – **Quebec** – Hydro-Québec
SERC Southeastern Electric Reliability Council	U.S.	FL – **Florida** – Florida Subregion
	U.S.	SOU – **Southern** – Southern Subregion
	U.S.	TVA – Tennessee Valley Authority Subregion
	U.S.	VAC – **VACAR** – Virginia-Carolinas Subregion
SPP Southwest Power Pool	U.S.	SE – **Southeast** – Western Mississippi, Southeastern Texas, Eastern Arkansas, Southeastern Missouri, and Louisiana
	U.S.	WC – **West Central** – Western Arkansas, the Texas Panhandle, Northeast Texas, and Oklahoma
	U.S.	N – **Northern** – Western Missouri and Kansas
WSCC Western Systems Coordinating Council	U.S.	NWP – **NW Pool** – Northwest Power Pool Area
	U.S.	RMP – **Rocky Mt Area** – Rocky Mountain Power Area
	U.S.	AZN – **Ariz-N. Mex** – Arizona-New Mexico Power Area
	U.S.	CNV – **Calif-So. Nev** – California-Southern Nevada Power Area
	CANADA	None
	MEXICO	None

North American Electric Reliability Council



ECAR
East Central Area Reliability Coordination Agreement

ERCOT
Electric Reliability Council of Texas

MAAC
Mid-Atlantic Area Council

MAIN
Mid-America Interconnected Network

MAPP
Mid-Continent Area Power Pool

NPCC
Northeast Power Coordinating Council

SERC
Southeastern Electric Reliability Council

SPP
Southwest Power Pool

WSCC
Western Systems Coordinating Council

AFFILIATE

ASCC
Alaska Systems Coordinating Council

The North American Electric Reliability Council (NERC) was formed in 1968 by the electric utilities to promote the RELIABILITY of their generation and transmission systems. NERC consists of nine Regional Reliability Councils and one affiliate encompassing virtually all of the electric systems in the United States, Canada, and the northern portion of Baja California, Mexico.

RELIABILITY, in a bulk electric system, is the degree to which the performance of the elements of that system results in electricity being delivered to customers within accepted standards and in the amount desired. The degree of reliability may be measured by the frequency, duration, and magnitude of adverse effects on the electric supply (or service to customers).

Bulk electric system reliability can be addressed by considering two basic and functional aspects of the bulk electric system — adequacy and security.

ADEQUACY is the ability of the bulk electric system to supply the aggregate electrical demand and energy requirements of the customers at all times, taking into account scheduled and unscheduled outages of system components.

SECURITY is the ability of the bulk electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system components.

North American
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Reliability
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